



eiaustralia

Contamination | Remediation | Geotechnical

CREATIVE VISION



Preliminary Site Investigation with Targeted Sampling

135 Badgerys Creek Road, Bradfield, NSW

E26733.E01.Rev1
25 September 2025

Document Control

Report Title: Preliminary Site Investigation with Targeted Sampling
Report Number: E26733.E01.Rev1

Copies	Recipient
1 Soft Copy (PDF – Secured, issued by email)	Boomika Madaiah Creative Vision on behalf of Bradfield Corporation Pty Ltd Level 2, 14 Railway Parade, Burwood NSW 2024
2 Original (Saved to Digital Archives)	EI Australia Pty Ltd Suite 6.01, 55 Miller Street, PYRMONT NSW 2009

Author	Project Manager	Report Reviewer
		
Jordan Goehner-Drewe Environmental Engineer	Sergio Raposeira Project Manager CEnvP Cert. No: 1959	Alex Syriatowicz Principal Environmental Consultant

Revision	Details	Date	Amended By
A	Draft	15 April 2025	
B	Draft – inclusion of groundwater data	11 July 2025	
0	Updated with final architectural plans	22 September 2025	SB/AL
1	Inclusion of Table 1.1 - Section 1.3	25 September 2025	SB/AL

© 2025 EI Australia (EI) ABN: 42 909 129 957

This report is protected by copyright law and may only be reproduced, in electronic or hard copy format, if it is copied and distributed in full and with prior written permission by EI.

EXECUTIVE SUMMARY

Creative Vision ('the client'), engaged EI Australia (EI) to undertake a preliminary investigation of the site, located at 135 Badgerys Creek Road, Bradfield, NSW (referred to hereafter as 'the site').

The site is located approximately 45 kilometres (km) west of the Sydney central business district (CBD), within the local government area (LGA) of Liverpool Council. The site comprised a rectangle-shaped section of land, covering an area of approximately 2.02 ha. At the time of the investigation, it was an occupied lot with no building structures.

The site was designated for development and this investigation was completed in support of the State Significant Development Application to the Department of Planning Housing and Infrastructure and corresponding NSW Government Planning Secretary's Environmental Assessment Requirements (SEARs, application number SSD-77458970) for the project. Condition 17 (Contamination and Remediation) of the SEARs. The purpose was to assess the potential for site contamination, as required by *State Environmental Planning Policy (Resilience and Hazards) 2021*.

Key Findings

The key findings of the investigation were as follows:

- The site has vacant (vegetated) land since 1949 and there was no evidence that market / orchard gardening took place on the site.
- The local surroundings had been comprised primarily of low density residential farmland properties since the 1949 at least with the exception of;
 - › Former OTC Site Group - Bringelly Radio Receiving Station decommissioned in 2002 and has no evidence of explosive ordinance activity or potentially contaminating activity.
 - › Advanced Manufacturing Readiness Facility, currently active (0.4m east)
 - › SSTOM – Bradfield, currently active (0.4m east)
 - › Crane Force storage yards and depot, currently active (20.6m west)
- No evidence of infrastructure associated with an underground storage tank was observed on the site. No aboveground storage tank was present.
- The sub-surface of the site to 21m BGL was generalised as a layer of anthropogenic, silty clay filling (0.0-0.5m thickness), overlying natural clay, ultimately grading into extremely weathered siltstone bedrock.
- The potential for acid sulphate be present was very low, however there was an elevated risk saline.
- No ash, slag or other foreign materials (including ACM) was observed in recovered fill or natural soil.
- No odour was observed in soil recovered from any of the boreholes.
- The laboratory analytical results for the representative soil samples were found to comply with the adopted investigation levels applicable to residential settings with accessible soils.
- Asbestos was not detected (at a reporting limit of 0.01 %w/w) in samples of fill recovered from each of the seven investigation locations.

- Groundwater standing levels ranged from 1.51 mBGL (BH3M) to 6.38 mBGL (BH5M).
- PIDs measured in the well headspace ranged from 0.8 (BH5M) to 19.4 ppm (BH6M);
- No suspicious odours were detected in the monitoring wells with the exception of sulphur like odour at BH3M; and
- No sheen was observed on the sampled groundwater.
- Groundwater was fresh to saline (EC 1,584 to 20,990 $\mu\text{S}/\text{cm}$), slightly acidic - alkaline (pH 6.64 to 7.59), oxidising conditions (Redox 173.6 to 177.8 mV) and oxygen depleted (DO 0.0 mg/L).
- The saline conditions verified at some of the wells (EC > 10,000 $\mu\text{S}/\text{cm}$) is anomalous and further investigation is recommended.
- All COPC concentrations in groundwater were found to comply with the adopted criteria except for the following:
 - › TRH-F1 was detected in BH6M at the concentration of 54 $\mu\text{g}/\text{L}$;
 - › TRH-F2 was detected in wells (BH1M, BH2M, BH3M and BH6M) at concentrations of 290 $\mu\text{g}/\text{L}$, 210 $\mu\text{g}/\text{L}$, 63 $\mu\text{g}/\text{L}$ and 71 $\mu\text{g}/\text{L}$ respectively;
 - › TRH-F3 was detected in well BH3M at a concentration of 930 $\mu\text{g}/\text{L}$; and
 - › TRH-F4 was detected in well BH3M at a concentration of 790 $\mu\text{g}/\text{L}$.
- The TRH concentrations detected are below the applicable human health guideline values (HSL A and B) for low-density residential land use, indicating a low risk to human health. However, the TRH detections exceed the aquatic ecosystems threshold at all sampling locations.
- The CSM developed for the site (**Section 4**) appropriately identified contamination sources, migration mechanisms and exposure pathways, as well as potential on- and off-site receptors. The risks posed to receptors by potential contaminants in soil were considered to be negligible.

Based on the findings of this PSI and with consideration of EI's *Statement of Limitations* (**Section 11**), EI concluded that gross or widespread contamination was not present within the investigation area. The site can be made suitable for the proposed development, in accordance with the *Contaminated Land Management Act 1997* and *State Environmental Planning Policy (Resilience and Hazards) 2021*, provided the recommendations detailed in **Section 10** are implemented.

TABLE OF CONTENTS

	Page Number
EXECUTIVE SUMMARY	III
1. INTRODUCTION	1
1.1 Background and Purpose	1
1.2 Proposed Development	1
1.3 Project Objectives	2
1.4 Scope of Work	3
1.5 Regulatory Framework	3
2. SITE DESCRIPTION	5
2.1 Property Identification, Location and Physical Setting	5
2.2 Regional Setting	5
2.3 Surrounding Land Use	6
2.4 Site Inspection	6
3. SITE HISTORY AND SEARCHES	8
3.1 Groundwater Bore Records and Local Groundwater Use	8
3.2 EPA Online Records	8
3.2.1 <i>Record of Notices Under Section 58 of CLM Act 1997</i>	8
3.2.2 <i>List of NSW Contaminated Sites Notified to the EPA</i>	8
3.2.3 <i>POEO Public Register</i>	8
3.3 Land Insight Report	9
3.3.1 <i>Historical Aerial Photographs</i>	9
3.3.2 <i>Historical Records</i>	10
3.4 Council Information Request	10
4. CONCEPTUAL SITE MODEL	12
4.1 Summary of Site History	12
4.2 Predicted Sub-surface Conditions	12
4.3 Potential Contamination Sources	12
4.4 Contaminants of Potential Concern	12
4.5 Risk Assessment	13
4.6 Potential Receptors	13
4.7 Preliminary Conceptual Site Model	13
5. FIELD WORK	15
5.1 Sampling, Analytical and Quality Plan	15
5.2 Data Quality Objectives	15
5.3 Data Quality Indicators	18
5.4 Sampling Rationale	18
5.5 Assessment Criteria	19

5.6	Soil Sampling Methodology	20
5.7	Groundwater Sampling Methodology	20
6.	DATA QUALITY ASSESSMENT	23
7.	RESULTS	24
7.1	Soil Field Results	24
7.1.1	<i>Sub-Surface Conditions</i>	24
7.1.2	<i>Field Observations</i>	24
7.2	Groundwater Field Results	24
7.2.1	<i>Monitoring Well Construction</i>	24
7.2.2	<i>Field Observations</i>	25
7.3	Laboratory Analytical Results	25
7.3.1	<i>Soil Laboratory Analytical Results</i>	25
7.3.2	<i>Groundwater Analytical Results</i>	26
8.	SITE CHARACTERISATION	29
8.1	Subsurface Conditions	29
8.2	Soil Impacts	29
8.3	Groundwater Impacts	29
8.4	Review of Conceptual Site Model	29
9.	CONCLUSION	31
10.	RECOMMENDATIONS	33
11.	STATEMENT OF LIMITATIONS	34
	REFERENCES	35

Appendices

APPENDIX A – FIGURES

APPENDIX B – RESULTS TABLE

APPENDIX C – SITE PHOTOGRAPHS

APPENDIX D – GROUNDWATER BORE SEARCH

APPENDIX E – LAND INSIGHT: DUE DILIGENCE REPORT

APPENDIX F – LAND INSIGHT: HISTORICAL IMAGERY

APPENDIX G – BOREHOLE LOGS

APPENDIX H – LABORATORY COC, SRA, ANALYTICAL REPORTS AND DQOS

APPENDIX I – ARCHITECTURAL PLANS

APPENDIX J – QA/QC ASSESSMENT

1. INTRODUCTION

1.1 Background and Purpose

Creative Vision ('the client'), engaged EI Australia (EI) to undertake a preliminary investigation of 135 Badgerys Creek Road, Bradfield, NSW (the southern block referred to hereinafter as 'the site').

The site is located approximately 45 kilometres (km) west of the Sydney central business district (CBD), within the local government area (LGA) of Liverpool Council (**Figure 1, Appendix A**). The site comprised a rectangle-shaped section of land, covering an area of approximately 2.02 ha. At the time of the investigation, it was an occupied lot with no building structures.

The site is located approximately 250m to the future Bradfield Metro Station and 4km to the Western Sydney Airport. It shares a western frontage with Badgerys Creek Road. The eastern boundary of the site adjoins the State government-led Bradfield City Centre which is set to be a vibrant 24/7 global city, driving advancements in industry and will support 10,000 more homes and 20,000 new jobs in Western Sydney.

As defined by the Aerotropolis Precinct Plan, the site is located within the Aerotropolis Core Precinct which is envisioned as an attractive place for workers, residents, and visitors. The Aerotropolis Core Precinct will leverage the positive economic impact of the adjacent Western Sydney Airport and Bradfield City Centre. It will attract business hubs, research and development, professional services, and creative industries in addition to providing residential development within walking distance of the Bradfield Metro station and proximity to blue and green infrastructure.

The site was designated for development and this investigation was completed in support of the State Significant Development Application to the Department of Planning Housing and Infrastructure and corresponding NSW Government Planning Secretary's Environmental Assessment Requirements (SEARs, application number SSD-77458970) for the project. Condition 17 (Contamination and Remediation) of the SEARs. The purpose was to assess the potential for site contamination, as required by *State Environmental Planning Policy (Resilience and Hazards) 2021*.

1.2 Proposed Development

Based on the supplied architectural drawings (**Appendix I**) the proposed development involves the construction of three buildings, comprising:

- Residential use, including approximately 400 apartment units;
- Hotel use, including approximately 450 hotel rooms;
- Commercial use, including supermarket, food and drink and other commercial uses;
- Medical centre use;
- Childcare centre use;
- Construction of two basement structures, including approximately 800 carparking spaces;
- Public domain upgrades, including:
 - › Construction of an internal road;
 - › A public plaza;

- Rehabilitation and augmentation of the existing riparian corridor;
- Landscaping embellishments on the ground level and within the built form; and
- Services augmentation as required.

From the above and after reviewing the proposed development plans EI understands that the excavation is planned for three detached two-level basements, comprising Stage 1 basement underlying the hotel and childcare towards the eastern boundary, Stage 2 basement underlying commercial and residential buildings towards the centre of the site, and Stage 3 underlying further commercial and residential buildings towards the western boundary. Stage 1 and 2 basements are shown to have a shared wall with Stage 2 and 3 separated by a riparian corridor with water course and a proposed local street.

The lowest basement level is proposed to have a Finished Floor Level (FFL) of between RL 69.0m and 71.2.0m Australian Height Datum (AHD). A Bulk Excavation Level (BEL) ranging between RL 68.7m and 69.1m is assumed, which includes allowance for the construction of the basement slab. To achieve the BEL, excavation depths from 7.0m to 12.0m Below Existing Ground Level (BEGl) have been estimated. Locally deeper excavations may be required for footings, lift overrun pits, crane pads, and service trenches.

The basement extends up to the northern and eastern site boundaries for the Stage 1 and 2 basements, and is set back from the southern boundary by about 3m. The Stage 3 basement is set back also about 3m from the southern site boundary, and about 10m from the western boundary, and a minimum of 6m from the northern site boundary.

1.3 Project Objectives

The objectives of this investigation were to:

- Review historical use of the land comprising the site;
- Assess the degree of soil contamination (if present), by intrusive sampling and laboratory analysis for the contaminants of potential concern (COPCs); and
- Provide a conclusion regarding the suitability of the site for its proposed use.

In accordance with section 4.39 of the Environmental Planning & Assessment Act 1979 (EP&A Act), Secretary’s Environmental Assessment Requirements (SEARs) for SSD-77458970 were issued on 30 January 2025. This PSI with limited sampling report has been prepared to respond to the relevant issued Secretary’s Environmental Assessment Requirements (SEARS), specifically the requirement set out in **Table 1-1** below.

Table 1-1 Summary of SEARs addressed

SEARs Request	Response / Location in report
<p>13 Ground and Groundwater Conditions (partial)</p> <ul style="list-style-type: none"> ▪ Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site and including soil erosion. ▪ Where required provide a Groundwater Impact Assessment in accordance with relevant Groundwater Guidelines. If the proposed development is on land identified as having high salinity or acid sulfate soil potential in an EPI provide a Salinity Management Plan or Acid Sulfate Soil Management Plan that includes appropriate management measures and strategies. 	<ul style="list-style-type: none"> ▪ Sections 2 up to 10 of this report and the groundwater assessment in Sections 7 - 8 ▪ Further details provided in separate reports: <ul style="list-style-type: none"> ▸ Salinity assessment in E26733.G17; ▸ Acid sulfate soils management in E26733.E14.
<p>Section 17: Contamination and Remediation</p> <ul style="list-style-type: none"> ▪ Preliminary Site Investigation: In accordance with Chapter 4 of 	<ul style="list-style-type: none"> ▪ Sections 2 up to 10 of this report.

SEARs Request	Response / Location in report
<p>SEPP (Resilience and Hazards) 2021, assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable (or will be suitable, after remediation) for the development.</p> <ul style="list-style-type: none">▪ Detailed Site Investigation (if required)▪ Remedial Action Plan (if required)▪ Preliminary Long Term Environmental Management Plan (if required)	

1.4 Scope of Work

To achieve the project objectives, the following scope of work was completed:

- Desktop review of relevant topographical, geological and soil landscape maps for the project area;
- A site walkover inspection;
- A search for WaterNSW registered groundwater bores within 500m radius of the site;
- Searches of public registers maintained by the Environment Protection Authority of New South Wales (EPA) for statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*;
- A search of the *List of NSW Contaminated Sites Notified to the EPA*;
- Review of the site history, based on an environmental risk and planning report prepared by Land Insight Pty Ltd, which included a series of aerial photographs);
- Presentation of a conceptual site model (CSM);
- Targeted sampling of six (6) boreholes (BH1M, BH2M, BH3M, BH4, BH5M and BH6M), adopting a part targeted / part systematic (triangular) sampling pattern across the site;
- Multiple level soil sampling within fill and natural soils at each borehole;
- Groundwater sampling at 4 newly installed groundwater wells (BH1M, BH2M, BH3M)
- Laboratory analysis of selected soil samples for the COPCs; and
- Data interpretation and reporting.

This report was completed with reference to the EPA (2020) *Consultants Reporting on Contaminated Land*. It documents the desktop study findings, observations made during the site inspection, the CSM, data quality objectives, sampling methodology, field data and the results of laboratory analyses. It concludes with statements concerning the potential for contamination to exist on the land and the site's suitability for its proposed development and recreational use.

1.5 Regulatory Framework

The following regulatory instruments and guidelines provided the framework for this PSI:

- *Contaminated Land Management Act 1997* (the CLM Act 1997);
- *Protection of the Environment Operations Act 1997* (the POEO Act 1997);
- *Environmental Planning and Assessment Act 1979* (the EP&A Act 1979);

- *State Environmental Planning Policy (Resilience and Hazards) 2021;*
- *Liverpool Local Environmental Plan 2008;*
- *Liverpool Development Control Plan 2008;*
- *EPA (2014) Waste Classification Guidelines;*
- *EPA (2017) Guidelines for the NSW Site Auditor Scheme;*
- *EPA (2020) Guidelines for Consultants Reporting on Contaminated Land;*
- *EPA (2022a) Sampling Design Part 1 - Application; and*
- *NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Amendment Measure 1999.*

2. SITE DESCRIPTION

2.1 Property Identification, Location and Physical Setting

The site identification details and associated information are presented in **Table 2-1**. The site locality is shown in **Appendix A, Figure 2**.

Table 2-1 Site Identification, Location and Zoning

Attribute	Description
Street Address	135 Badgerys Creek Road, Bradfield, NSW 2556.
Location Description	The site is a vegetated vacant lot. It was surrounded by: <ul style="list-style-type: none"> ▪ North: Residential farmland; ▪ East: Sydney Metro and Bradfield City Centre construction site; ▪ South: Residential farmland; ▪ West: Badgerys Creek Road, followed by residential farmland and a depot/storage yard
Geographical Coordinates	North-western corner of site (GDA2020-MGA56): <ul style="list-style-type: none"> ▪ Easting: 290105.126 ▪ Northing: 6244096.985 ▪ (http://maps.six.nsw.gov.au)
Site Area	Approximately 2.02 ha (http://maps.six.nsw.gov.au)
Cadastral Identification	Lot 7 in Deposited Plan 243457 (http://maps.six.nsw.gov.au).
State Survey Marks	Two state survey marks are in close proximity to the site (500 m): <ul style="list-style-type: none"> ▪ SS18057: located on Badgerys Creek Road (410 m South); ▪ SS18058: located on Badgerys Creek Road (365 m North); (http://maps.six.nsw.gov.au)
LGA	Liverpool City Council
Current Zoning	MU – Mixed Use (<i>State Environmental Policy (Precincts – Western Parkland City) 2021;</i> <i>Liverpool City Council Local Environment Plan 2008</i>)

2.2 Regional Setting

Regional topography, (hydro)geology and soil landscape information is given in **Table 2-2**.

Table 2-2 Regional Setting Information

Attribute	Description
Topography	The site gently downslopes from the west and east boundary's to the centre of the site, with elevations ranging from 80 to 76 metre Australian Height Datum (m AHD) (Source: Mecone Mosaic).

Attribute	Description
Site Drainage	Surface water is expected to directly infiltrate on exposed surfaces. Any runoff is likely to drain into the municipal stormwater system.
Geology	According to the <i>Geological Series Penrith Sheet 9030</i> (DMR, 1991), the site is underlain by <i>Rwb: Bringelly Shale</i> , characterised by shale, carbonaceous claystone, claystone, laminate, fine to medium grained lithic sandstone, rare coal and tuff.
Soil Landscape	The NSW Government Department of Planning, Industry and Environment eSPADE v2.2 website indicates that the site overlies a Blacktown (<i>bt</i>) residual landscape, which consists of gently undulating rises on Wianamatta Group shales. Local relief to 30 m, slopes usually >5%. Broad rounded crests and ridges with gently inclined slopes
Acid Sulfate Soil (ASS) Risk	With reference to the <i>Atlas of Australian Acid Sulfate Soils</i> (Due Diligence Report; Land Insight, 2025), the site lies within the class description of ' <i>Extremely low probability of occurrence</i> '. In such cases, ASSs are not known or expected to occur and "land management activities are not likely to be affected by ASS materials." Based on the map information, as well as the site's elevation 76-80m AHD, the potential for ASS to be present on-site was low and further related assessment was unwarranted.
Nearest Surface Water Feature	Private: Dam located approximately 20 m north of the northern site boundary. Public: Moore Gully approximately 500 m south of the site.
Groundwater Flow Direction	Anticipated to be south easterly, towards Moore Gully.

2.3 Surrounding Land Use

The site is surrounded by low density, residential properties. The local sensitive receptors within close proximity (<100m) to the site were identified in **Table 2-3**.

Table 2-3 Surrounding Land Uses

Direction	Land Use Description	Sensitive Receptor (distance from site)
North	Residential farmland	Flora and fauna in open space Residents (immediately adjacent)
East	Construction site (Metro and Bradfield City Centre)	Construction workers (immediately adjacent)
South	Residential farmland	Flora and fauna in open space Residents (immediately adjacent)
West	Badgerys Creek Road, followed by residential farmland and commercial depot and storage yard	Flora and fauna in open space Residents (immediately adjacent) Workers

2.4 Site Inspection

Observations were recorded during a site walkover inspection, conducted on 22 April 2025. Site photographs taken during the inspection are presented in **Appendix C**.

- The site was a rectangle-shaped block of land.
- The site was vacant space grassland with small pockets of trees on the southern and western boundaries.

- There were no buildings on the site and no obvious signs of structures (i.e. former foundations etc.) with the exception of an old wooden fence post.
- There was no evidence that an underground storage tank (UST) existed on the site. No aboveground storage tank (AST) was present.
- No suspicious odour was detected during the site walkover inspection. There was no visible evidence of gross contamination.
- There was no NSW Fire and Rescue Station, dry cleaning business or fuel service station in the vicinity (<100m) of the site.

3. SITE HISTORY AND SEARCHES

3.1 Groundwater Bore Records and Local Groundwater Use

An online search for groundwater bores registered with WaterNSW was conducted on 15 April 2025 (<https://realtimedata.waternsw.com.au/water.stm>) and no registered bores located within a 500m radius of the site were reported in the WaterNSW data set. A supplementary search was conducted by Land Insight (2025) and the searches returned 3 groundwater bores within 500m from the site. The 3 bores were drilled on 13-14 December 2010 to a final depth of approximately 12m below ground level (BGL). All three wells were located >350m east/ south east of the site with an authorised for monitoring purposes.

Based on this search, it was considered that the local groundwater resource was not being (heavily) utilised for beneficial (domestic, irrigation or industrial) purposes.

3.2 EPA Online Records

Searches of public registers maintained by the EPA for statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* (CLM Act 1997) and *Protection of the Environment Operations Act 1997* (POEO Act 1997) were conducted by EI for this PSI.

3.2.1 Record of Notices Under Section 58 of CLM Act 1997

An on-line search of the contaminated land public record was conducted on 30 April 2025. The contaminated land public record is a searchable database of:

- Orders made under Part 3 of the CLM Act 1997;
- Notices available to the public under Section 58 of the CLM Act;
- Approved voluntary management proposals under the CLM Act 1997 that have not been fully carried out and where the approval of the EPA has not been revoked;
- Site audit statements provided to the EPA under Section 53B of the CLM Act 1997 that relate to significantly contaminated land;
- Where practicable, copies of anything formerly required to be part of the public record; and
- Actions taken by the EPA under Section 35 or 36 of the *Environmentally Hazardous Chemicals Act 1985* (EHC Act 1985).

The search confirmed that neither the sites, nor the surrounding lands within close proximity ($\leq 500\text{m}$), were subject to any regulatory notices relevant to the above legislations.

3.2.2 List of NSW Contaminated Sites Notified to the EPA

A search through the *List of NSW Contaminated Sites Notified to the EPA* under Section 60 of the CLM Act 1997 was conducted on 30 April 2025. This list is maintained by the EPA and includes properties on which contamination has been identified, but not deemed to be impacted significantly enough to warrant regulation.

The search confirmed that neither the site, nor the surrounding lands within close proximity ($\leq 250\text{m}$), had been notified as contaminated to the EPA (i.e. they were not included in the list).

3.2.3 POEO Public Register

A search of the *Protection of the Environment Operations Act 1997* public register was conducted on 30 April 2025. This public register contains records related to environmental protection licences, applications, notices, audits, pollution studies and reduction programs.

The search confirmed that the site was not subject to any licensing agreements relevant to the above legislation.

NSW Government PFAS Investigation Program

The EPA leads a program assessing the legacy of per- and poly-fluoro alkyl substance (PFAS) use across NSW. A search of the *NSW Government PFAS Investigation Program* database was conducted on 30 April 2025. Neither the site, nor any area in its close proximity ($\leq 500\text{m}$ radius), were under PFAS investigation at the time of this investigation.

3.3 Land Insight Report

An environmental risk and planning report prepared by Land Insight Pty Ltd (Due Diligence Report, 2025) was reviewed as part of this PSI. A copy of the report is presented in **Appendix E**.

3.3.1 Historical Aerial Photographs

Historical aerial photographs from 1949 to 2025 were provided in the Land Insight report.

Table 3-2 Summary of Aerial Photographs

Photograph	Observations
1949	The site appears to be unoccupied open field space. Surrounding area included low density residential dwellings, and similar agricultural land and open field space.
1955	The site and surroundings remained largely unchanged.
1961	Site remains relatively unchanged. Surrounding areas remain relatively unchanged with the exception of residential dwellings constructed on the eastern neighbouring property.
1975	The site and surroundings remained largely unchanged.
1978	The site remained largely unchanged. Low density residential dwellings constructed in neighbouring properties.
1991	The site remained largely unchanged. Surrounding areas remain relatively unchanged with the exception of agricultural development on the neighbouring property to the west of the site.
1995	The site remained largely unchanged. Surrounding areas appear to remain relatively the same with the exception of minor developments among residential properties.
2010	The site remained largely unchanged. Surrounding areas appear to remain relatively the same with the exception of a loading yard/storage yard in the neighbouring property to the west of the site.
2019	The site and surroundings remained largely unchanged.
2022	The site remained largely unchanged. Surrounding areas appear to remain relatively the same with the exception of a construction site developing on the neighbouring property to the east of the site.
2025	The site remained largely unchanged. Surrounding areas appear to remain relatively the same with the exception of a construction site developing on the neighbouring property to the east of the site.

Based on the aerial images, the site was appears to be vacant (vegetated) land from 1949 until present day.

3.3.2 Historical Records

A search of historical records for the site and surrounding area was undertaken (Land Insight report, Ref: LI-4667 DDR, 2025) and is presented in **Appendix E**. A review of relevant (historical) information is summarised below:

- No former gasworks sites were present within a 2000 m radius of the site;
- No national waste management sites were present within a 500 m radius of the site;
- No retail fuel facility sites were identified within a 500 m radius of the site;
- No properties received a NSW Environment Protection Authority (EPA) Clean Up Notice within a 1,000 m radius of the site;
- No properties that were part of the NSW Environment Protection Authority (EPA) per and poly-fluoroalkyl substances (PFAS) Investigation Program, or the Defence or Airservices Australia PFAS programs were present within a 2000 m radius of the site;
- One property was identified to be a part of a Defence Controlled Area (DCA), or assessed as part of the Defence 3 Year Regional Contamination Investigation Program (RCIP), or National unexploded ordnance (UXO) within a 2000 m radius of the site;
 - › Former OTC Site Group - Bringelly Radio Receiving Station – decommissioned in 2002 and primarily used as a receiving centre for overseas radio telegrams and telephone calls. Located approximately 560m north of the site.
- The site and its surroundings were not recorded as having a “naturally occurring asbestos potential”;
- The dryland salinity assessment identified the site as having a **very high salinity hazard**;
- No miners, quarries, or mining subsidence districts were present within the surveyed area;
- No groundwater protection areas or wetlands were identified on the site,
- 3 business activities with a potential for having contaminating activities have operated within close proximity of the site (approx. 200 m) during previous years.
 - › Advanced Manufacturing Readiness Facility (Manufacturing and Industrial Facilities) – 215 Badgerys Creek Rd, Bradfield NSW 2556, located approximately 0.4m east of the site (currently operating).
 - › SSTOM - Bradfield (AEC) (Manufacturing and Industrial Facilities) – 215 Badgerys Creek Rd, Bradfield NSW 2556, located approximately 0.4m east of the site (currently operating).
 - › Crane Force (Depots and Storage Yards) 100 Badgerys Creek Rd, Bringelly NSW 2556, located approximately 20.6m west of the site (currently operating)
- No dry cleaners and dyers appear to have operated historically and/or currently operating within 500m of the subject site with records from the detailed data search.

Based on a review of information presented, some contaminating activities (i.e. manufacturing/industrial facilities and depot/storage yard) may pose a risk to groundwater within the subject site due to their proximity and/or location.

3.4 Council Information Request

A request to access documents held by the Liverpool City Council was submitted on 15 April 2025. A response from Liverpool City Council was received on 12 May 2025 and after a

comprehensive search of Council's records systems there not documents relevant to 'Approvals, manufacturing activities, gardening activities, storage of chemicals, changes of site use and contamination' were found on file.

4. CONCEPTUAL SITE MODEL

In accordance with NEPC (2013) *Schedule B2 – Guideline on Site Characterisation*, EI developed a CSM that assessed plausible linkages between potential contamination sources, migration pathways and receptors. Such assessment enabled the identification of data gaps in the existing site characterisation (i.e. guided the next (sampling) stage of the investigation).

4.1 Summary of Site History

Based on the available historical information, the site has been vacant (vegetated) land since 1949. There was no evidence that market / orchard gardening took place on the site.

The local surroundings had also been comprised of residential properties since the 1949, at least with the exception of;

- Former OTC Site Group - Bringelly Radio Receiving Station decommissioned in 2002 and has no evidence of explosive ordnance activity or potentially contaminating activity.
- Advanced Manufacturing Readiness Facility, currently active (0.4m east)
- SSTOM – Bradfield, currently active (0.4m east)
- Crane Force storage yards and depot, currently active (20.6m west)

4.2 Predicted Sub-surface Conditions

Based on the map information and site walkover inspection, the subsurface was expected to consist of anthropogenic, clay-dominated (topsoil) filling (<1m thickness), overlying natural clays, ultimately grading into weathered siltstone. Acid sulfate were unlikely to be present. The local groundwater table was predicted to be >5m BGL.

4.3 Potential Contamination Sources

The site had a long (continuous) history of open farmland and low density residential surroundings. That, in it, would suggest that the potential for contamination to be present on the land was low. However, certain potentially contaminating sources were recognised during this PSI, as follows:

- Importation of fill materials of unknown origin and quality, used to grade the site;
- Application of pesticides around landscaped areas for weed management;
- Migration of contaminants from adjacent (hydraulically up-gradient) properties, via groundwater and aerosols.

4.4 Contaminants of Potential Concern

Based on the sources identified above, the COPCs for this site were:

- Heavy metals (HMs), including arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc;
- Total Recoverable Hydrocarbons (TRHs);
- Volatile Organic Compounds (VOCs), including the
 - Monocyclic aromatic hydrocarbons Benzene, Toluene, Ethylbenzene, Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);

- Organochlorine and Organophosphorus Pesticides (OCPs/OPPs);
- Polychlorinated Biphenyls (PCBs); and
- Asbestos.

Notes:

All other emerging chemicals managed by the EPA in accordance with the *Environmentally Hazardous Chemicals Act 1985* through a chemical control order were **not** considered to be COPCs for this site. Per- and Poly- Fluoro alkyl Substances (PFASs) were **not** considered to be COPCs for this site, however due to the potential of offsite migration from neighbouring properties PFASs is considered a COPCs in groundwater. Salinity parameters will require a further assessment on a sub sequential geotechnical investigation..

4.5 Risk Assessment

A qualitative assessment of the potential contamination risks for the site is given in **Table 4-1**.

Table 4-1 Assessment of Potential Contamination Risk

Potential Source	Impacted Medium	COPC	Likelihood (Risk) of Contamination
Imported filling	Soil	HM, TRH, BTEX, PAH, OCP, OPP, and asbestos	Low Shallow layers of filling expected to be present.
Application of pesticides and herbicides	Surface soil	HM (arsenic and copper in particular), OCP and OPP	Low If applied, probably restricted to localised areas. OCP phased out decades ago.
Off-site migration from up-gradient sources	Groundwater	Dissolved HM, TRH, VOC and PFAS	Low to moderate Up-gradient depot activity was observed across the road, approximately 20m distance west. Active construction and industrial activity immediately adjacent to site in the east.

4.6 Potential Receptors

The following potential receptors of site contamination were identified:

- Existing and future site users / occupiers;
- On-site demolition and construction workers (during future redevelopment);
- Users of the adjacent land (during future redevelopment);
- Ecological receptors (flora and fauna) in areas of exposed soil / landscaping; and
- Local groundwater and surface runoff, including private dams on surrounding properties (immediately adjacent).

4.7 Preliminary Conceptual Site Model

The CSM is summarised in **Table 4-2**. Based on this model, the potential for contamination to exist on the site was low. Further (detailed / field-based) investigation was warranted, as a precaution, given the sensitivity of the land use (community hub with child care services).

Table 4-2 Preliminary Conceptual Site Model

Potential Source	Impacted Media	Contaminants of Concern	Transport Mechanism	Exposure Pathway	Potential Receptor
Imported fill of unknown origin and quality	Soil	HM, TRH, BTEX, PAH, OCP, OPP, PCB, asbestos	Disturbance of surface and subsurface soils during site redevelopment, future site maintenance and future use of the site post redevelopment.	<ul style="list-style-type: none"> ▪ Ingestion ▪ Dermal contact ▪ Inhalation of particulates ▪ Inhalation of vapours 	<ul style="list-style-type: none"> ▪ Current and future site users ▪ Construction workers and future intrusive workers ▪ Adjacent site users
Application of pesticides					
Migration from off-site sources			Volatilisation of contamination from soil and diffusion to indoor air spaces.	<ul style="list-style-type: none"> ▪ Inhalation of vapours 	<ul style="list-style-type: none"> ▪ Current and future site users ▪ Adjacent site users
	Groundwater	Dissolved HM, TRH, VOC and PFAS	Disturbance of surface and subsurface soils during site redevelopment, future site maintenance and future use of the site post redevelopment.	<ul style="list-style-type: none"> ▪ Inhalation of vapours ▪ Ingestion ▪ Dermal contact 	<ul style="list-style-type: none"> ▪ Current and future site users ▪ Construction workers and future intrusive workers ▪ Adjacent site users
			Migration of dissolved phase impacts in groundwater via diffusion and natural advection.	<ul style="list-style-type: none"> ▪ Biota uptake 	<ul style="list-style-type: none"> ▪ Stony Creek and public open space (Ashley Grove Reserve) ▪ Adjacent site users

Footnotes:

The overall potential for contamination to exist on the site was deemed to be low .

Current risks associated with all Source-Pathway-Receptor (SPR) linkages considered to be low

Site workers during demolition and construction, as well as future service maintenance, assumed to use personal protective equipment (PPE), as per SafeWork NSW regulations; hence, eliminating SPR linkage.

5. FIELD WORK

5.1 Sampling, Analytical and Quality Plan

A comprehensive sampling, analytical and quality plan (SAQP) ensures that the analytical data collected during environmental investigations are representative and provide a robust basis for land management decisions. The SAQP for this PSI included the following:

- Determination of the data quality objectives (DQOs) for the project, established with reference to the principal objectives of the investigation;
- The quality assurance / quality control (QA/QC) program; including
- The data quality indicators (DQIs) that applied to the QC samples;
- A rationale for the field component of this investigation, with identification of the chosen (targeted) sampling locations and the media to be sampled at each of those points;
- Description of the field works (outlining sample collection and screening methods, as well as their handling, preservation / storage and transport), with acknowledgement that all such tasks had to be consistent with industry-endorsed, standard operating procedures (SOPs); and
- Selection of the COPCs to be tested on the collected (representative) samples facilitated by the completion of chain-of-custody (COC) forms that were provided to the contracted analytical laboratories at the time of sample delivery.

5.2 Data Quality Objectives

In accordance with the NEPC (2013) *Schedule B2 Guideline on Site Characterisation*, the USEPA (2006) *Data Quality Assessment* and EPA (2017) *Guidelines for the NSW Site Auditor Scheme*, DQOs were developed by the EI investigation team, following the NEPC- / EPA-endorsed, seven step process (**Table 5-1**). In doing so, the appropriate levels of data quantity and quality needed for the specific requirements of the project were established

Table 5-1 Summary of Project Data Quality Objectives

DQO Steps	Details
<p>1. State the Problem Summarise the contamination problem that required environmental data, and identify the resources available to resolve the problem; refer to the CSM.</p>	<p>Proposed site redevelopment area is presented in Figure 2, Appendix A. It involves the construction of a mixed use residential and commercial development comprising four, mixed commercial (retail) and residential (apartment) buildings, and one hotel building with associated childcare. Three detached two-level basements, comprising Stage 1 basement underlying the hotel and childcare towards the eastern boundary, Stage 2 basement underlying commercial and residential buildings towards the centre of the site, and Stage 3 underlying further commercial and residential buildings towards the western boundary. The lowest basement level is proposed to have a Finished Floor Level (FFL) of between RL 69.7m and 71.2m Australian Height Datum (AHD).</p> <p>The proposed development is equivalent to a generic NEPC (2013) land use setting of residential with limited access to soil. This investigation was required to characterise the environmental condition of the site, and enable the developer to meet their obligations under SEPP 2021 and CLM Act 1997, in support of the SEARs development application.</p> <p>The CSM (Section 4) established there was (low to moderate) potential for site contamination. More detailed investigation was necessary, by way of analysis of soil samples for the identified COPCs. A part targeted / part systematic (triangular) sampling pattern was to be adopted.</p>
<p>2. Identify the Goal of the Study (Identify the decisions) Identify the decisions that needed to be made on the contamination problem and the collated data.</p>	<p>Based on the objectives stated in Section 1.3, the decisions that need to be made were:</p> <ul style="list-style-type: none"> ▪ Has the nature, extent and source of any soil and/or groundwater impacts onsite been defined? ▪ What impact do the site specific, geologic and hydrogeological conditions have on the fate and transport of any impacts that may be identified? ▪ Does the level of impact coupled with the fate and transport of identified contaminants represent an unacceptable risk to identified human and/or environmental receptors on or offsite? ▪ Does the collected data provide sufficient information to allow the suitability of the site to be determined, or selection and design of an appropriate remedial strategy, if necessary? ▪ If the data does not provide sufficient information, what data gaps require closure to enable the suitability of the site to be determined, or selection and design of an appropriate remedial strategy?
<p>3. Identify Information Inputs (Identify inputs to decision) Identify the information needed to support any decision relating to the contamination status of the site.</p>	<p>Inputs to the decision making process included:</p> <ul style="list-style-type: none"> ▪ The proposed development and land use; ▪ Site history information; ▪ National and EPA guidelines approved under the <i>NSW Contaminated Land Management Act 1997</i>; ▪ Observations made during site inspection and from soil profiling and sampling; ▪ Laboratory analytical results for the selected soil samples; and ▪ Tier 1 risk assessment, as per NEPC (2013) schedules. <p>At completion of the PSI, a decision is required regarding the suitability of the site for the proposed redevelopment, or if additional investigation is required to confirm that the site is suitable for that development or if remediation is required to make the site suitable.</p>

DQO Steps

Details

4. Define the Boundaries of the Study

Specify the spatial and temporal limits to the current investigation.

Lateral – The cadastral boundaries of the site (see **Figure 2, Appendix A**);

Vertical – From the ground surface, down to the deepest depth of borehole drilling (2m below ground level (BGL)), including underlying fill and natural soil horizons.

Temporal – The results were valid on the day samples were collected and remain valid as long as no changes occur in regards to site use, and contamination (if present) does not migrate onto the site from off-site sources.

5. Develop the Analytic Approach (Develop a decision rule)

Specify the decision rule, in the form of a simple statement, that determined a logical basis for the conclusion of the investigation.

The decision rule for the investigation was:

- If the concentrations of COPCs in soil samples exceeded the adopted acceptance thresholds, then further investigation and/or remediation was warranted.

Hence, soil and groundwater concentrations for the COPCs that were below the adopted thresholds approved by the EPA were treated as indicative of suitability for the proposed development / land use (and no further action was required). If contaminant concentrations exceeded the thresholds, further investigation / remediation was considered prudent.

6. Specify Acceptance Criteria (Specify limits on decision errors)

Specify the acceptable limits on decision errors, which were established (defined) by the inherent uncertainties in the data.

Specific limits for this project were in accordance with National and EPA guidance, as well as appropriate indicators of data quality. They included:

- The concentration for a given COPC had to be less than the corresponding threshold applicable to residential land use (with accessible soils);
- The standard deviation of the data for a given COPC was less than 50% of the corresponding threshold; and
- No single result for a given COPC exceeded the corresponding threshold applicable to residential land use criterion by 250% or more.

To confirm the reliability of the data set, QC measures were integrated into the analytical program, each having a pre-defined DQI. The DQIs, and their corresponding acceptance limits, are presented in **Table 5-2**.

7. Develop the Plan for Obtaining Data (Optimise the study design)

Identify the most resource-effective sampling and analysis design, to satisfy the DQOs of the investigation.

The most resource-effective sampling and analysis design was deemed to be:

- Soil sampling was conducted at 6 locations using a generally systematic grid pattern across accessible parts of the site. Note: The number of sampling locations is below the minimum number of points recommended under NSW EPA 2022 Sampling Design Guidelines (31 locations for an area of 2.02 ha). However, given historical usage of the site, the soil sampling density was considered to be sufficient for due diligence purposes of a preliminary characterisation.
- An upper soil profile sample was collected at four borehole locations and analysed for the COPCs, to assess the condition of the fill layer, and impacts from activities at ground level.
- Further discrete, natural samples were analysed for potential contaminants. Samples were selected on field observations (including visual and olfactory evidence), giving consideration to the subsurface stratigraphy.
- A total of 4 groundwater monitoring wells were gauged to assess groundwater quality at the site.
- Review of the results was undertaken to determine if further sampling was warranted.

During the PSI, written instructions were issued to guide field personnel in the required fieldwork activities. All field works were performed in accordance with EPA guidelines and EI SOPs.

5.3 Data Quality Indicators

A program of QA/QC measures was integrated into this PSI, with the goal being to ensure that the proportion of the “useable sample data” was maximised and sufficient for the purposes of the land use assessment. This program is summarised in **Table 5-2**. The quality indicators that applied to the corresponding QC analytical data are included in this table.

Table 5-2 Summary of Project QA/QC Measures

QA/QC Component	Description and DQIs
<p>Precision A quantitative measure of the variability (or reproducibility) of data</p>	<p>Data precision was assessed by reviewing the performance of blind field and laboratory duplicate sample sets, through calculation of relative percentage differences (RPDs). Data precision was deemed acceptable if RPDs were less than 30%. RPDs exceeding this range were considered acceptable if:</p> <ul style="list-style-type: none"> ▪ Results were less than 10 times the limits of reporting (LOR); ▪ Results were less than 20 times the LOR and RPD was less than 50%; or ▪ Heterogeneous materials or volatile compounds were encountered.
<p>Accuracy A quantitative measure of the closeness of reported data to the “true” value</p>	<p>Data accuracy was assessed through the analysis of:</p> <ul style="list-style-type: none"> ▪ Split field duplicate and triplicate samples (ideally <30% RPD); ▪ Equipment rinsate, field trip and laboratory method blanks, analysed for the identified COPCs (ideally <LOR); ▪ Trip and matrix spikes (70-130% recovery); and ▪ Laboratory control samples (ideally <30% RPD; 70-130% recovery).
<p>Representativeness The confidence that data are representative of each medium sampled</p>	<p>To ensure the data were representative of conditions encountered in the field:</p> <ul style="list-style-type: none"> ▪ Blank samples were run in parallel with field samples, to confirm no unacceptable instances of contamination or laboratory artefacts; ▪ Review of RPDs for field and laboratory duplicates provided an indication that the samples were generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities; and ▪ The sample collection, handling, storage and preservation techniques were standardised, to ensure there was minimal opportunity for sample interference or degradation (i.e. volatile loss during transport due to incorrect preservation / transport methods).
<p>Completeness The amount of useable data from a data collection activity</p>	<p>Analytical data sets acquired during the PSI were evaluated as complete upon confirmation that:</p> <ul style="list-style-type: none"> ▪ Standard operating procedures (SOPs) for sampling protocols were adhered to; and ▪ Copies of all chain of custody (COC) documentation were included and found to be properly completed. <p>It could therefore be considered whether the proportion of “useable data” generated in the data collection activities was sufficient for the purposes of the land use assessment.</p>
<p>Comparability The confidence that data are equivalent for each sampling event</p>	<p>Data sets from separate sampling episodes were required and issues of comparability were reduced through adherence to SOPs and regulator-endorsed or published guidelines and standards on each data gathering activity.</p> <p>In addition, the data were collected by experienced samplers and NATA-accredited laboratory methodologies will be employed.</p>

5.4 Sampling Rationale

With reference to the CSM (**Section 4**) and the DQOs (**Section 5.2**), the soil sampling and analytical works were completed in accordance with the following rationale:

- *In situ* soil profiling and sampling of fill and natural soils from five (5) borehole locations (identified as BH1M, BH2M, BH3M, BH5M, BH6M), adopting a part targeted / part systematic (triangular) sampling pattern, the density / frequency complying with the minimum number points recommended under Table 2 of the EPA (2022a) *Sampling Design Part 1 – Application*.

- Laboratory analysis of representative soil samples (eight in total) from five of the test boreholes (BH1M, BH2M, BH3M, BH5M and BH6M) for the potential contaminants.

With respect to targeted sampling component (**Figure 2, Appendix A**):

- BH1M is within the proposed basement footprint and down gradient of a potentially contaminating activity approximately 20m from site (north west corner of the site);
- BH2M is within a proposed accessible soil zone and down gradient of a potentially contaminating activity approximately 20m from site (south west corner of the site);
- BH3M is within an intermittent creek system and is proposed to be an accessible soil zone;
- BH4 general site coverage;
- BH5M is within a proposed basement footprint and child care facility with accessible soils within close proximity; and
- BH6M is within a proposed basement footprint.

5.5 Assessment Criteria

The assessment criteria adopted for this PSI are defined in **Table 5-3**. They were derived from published guidelines that are made or approved by the EPA, with due consideration of the exposure scenario that is expected for the site, the likely exposure pathways and the identified potential receptors. For the purposes of this PSI, the adopted soil criteria are referred to as the *Soil Investigation Levels (SILs)*.

Table 5-3 Adopted Investigation Levels for Soil

Medium	Adopted Guidelines	Rationale
Soil	NEPC (2013) Soil HILs, HSLs, EILs/ESLs, Management Limits for TRHs	<p>Soil Health-based Investigation Levels (HILs) Samples assessed against the NEPC (2013) <i>HIL-A</i> thresholds for residential settings with garden/accessible soil (includes children’s day care centres, preschools and primary schools).</p> <p>Soil Health-based Screening Levels (HSLs) Samples were assessed against the NEPC (2013) Health Screening Levels (HSLs) A and B for low- to high-density residential settings with sand-dominated soils. These thresholds were selected as they represent the most conservative guideline values, given the proposed development includes a child care facility with accessible soils in close proximity</p> <p>Ecological Investigation and Screening Levels (EILs/ESLs) for residential use.</p> <p>Asbestos For asbestos in soil, the following criteria were applicable:</p> <ul style="list-style-type: none"> ▪ Identification based on presence / absence ▪ No visible asbestos on soil surface in all areas of the site. <p>Management Limits for Petroleum Hydrocarbons Where the HSLs were exceeded for petroleum hydrocarbons, soil samples were also assessed against the NEPC (2013) <i>Management Limits</i> for the F1-F4 TRH fractions.</p>
Groundwater	ANZG (2018) Marine and Fresh Water Criteria	Criteria for slightly to moderately disturbed freshwater systems (95% protection) will be adopted. Where a criterion falls is below the, the Practical Quantitation Limit (PQL) will be applied, in accordance with Department of Environment and Conservation (DEC, 2007) <i>Guidelines for the Assessment and Management of Groundwater Contamination</i> .

Medium	Adopted Guidelines	Rationale
	NEPC (2013) Groundwater HSLs for Vapour Intrusion	Groundwater <i>HSLs B</i> vapour intrusion will be used to assess potential human health impacts from residual vapours of petroleum hydrocarbons, BTEX and naphthalene.
	HEPA (2025) PFAS Criteria	PFAS results will be compared against the health-based guidelines for 95% species protection in slightly to moderately disturbed systems.

5.6 Soil Sampling Methodology

The soil sampling methodology is described in **Table 5-4**. Sampling locations are illustrated in **Appendix A, Figure 2**.

Table 5-4 Summary of Soil Sampling Methodology

Activity/Item	Details
Fieldwork	Soil sampling was conducted across multiple days, from 23 April 2025 until 30 April 2025 6 test boreholes drilled (BH1M-BH4-BH6M) with five converted to groundwater monitoring wells.
Drilling Method and Depth	All test bores were constructed using a Comacchio GEO 205 drilling rig. The maximum drilling depth was 21m BGL (at BH3M). Borehole logs are presented in Appendix G .
Soil Logging	Examined soils were described in-field with respect to lithological characteristics and evaluated on a qualitative basis for odour and visual signs of contamination. Soil classifications and descriptions were based on Australian Standard (AS) 1726:2017. Soil descriptions are included in the logs in Appendix G .
Soil Sampling	Soil samples were collected by dry grab method from the auger (the sampler wearing previously unused, dedicated nitrile gloves) and placed into laboratory-supplied containers (glass jars and plastic, zip-lock bags). Field duplicates was separated from the primary samples and placed into glass jars.
Decontamination Procedures	The auger was cleaned between each sampling location by washing with potable water. Disposal gloves were replaced between each sampling location.
Sample Preservation	Samples were stored in an insulated chest (containing ice bricks), whilst on-site and in transit to the laboratory. They were transported to SGS Australia Pty Ltd (SGS; the primary laboratory), except for the split (inter-laboratory) soil field triplicate, which was submitted to Envirolab Services Pty Ltd (Envirolab; the secondary laboratory). All sample transport was conducted according to strict COC conditions. Signed COC certificates and sample receipt advice (SRA) were provided by SGS and Envirolab for confirmation purposes (Appendix H).
Management of Soil Cuttings	Soil cuttings were returned to the drill bore, with any surplus material placed adjacent to the borehole upon completion of works at the respective location.
Laboratory Analysis and Quality Control	Soil samples were analysed by SGS and Envirolab for the COPCs. All analyses were conducted within the prescribed holding times (Appendix H). The raw data are tabulated in Appendix H , along with the SILs. In addition to the split (inter-laboratory) field duplicate analysed by Envirolab, QC testing comprised one blind (intra-laboratory) field duplicate, an equipment rinsate blank, a laboratory-prepared trip spike soil sample and a laboratory-prepared trip blank soil sample, all analysed by SGS.

5.7 Groundwater Sampling Methodology

The Groundwater sampling methodology is described in **Table 5-5**. Sampling locations are illustrated in **Appendix A, Figure 2**.

Table 5-5 Groundwater Investigation Methodology

Activity/Item	Details
Fieldwork	Five groundwater monitoring wells (BH1M to BH3M, BH5M and BH6M) were installed from 23 April 2025 to 30 April 2025 and subsequently developed. Targeted groundwater sampling was conducted on 7 May 2025 at monitoring wells BH1M, BH2M, BH3M and BH6M.
Well Construction	Construction details were documented in the bore logs presented in Appendix G .
Well Development	Well development was conducted a week prior to groundwater sampling event. This involved agitation within the full length of the water column using a dedicated, high density polyethylene (HDPE) disposable bailer, followed by removal of water and accumulated sediment using a 12V, HDPE submersible bore pump (Proactive Environmental, model Super Twister). Pumping was continued until no further reduction in suspended sediment was observed (i.e. after removal of several well volumes).
Well Sampling	<p>Groundwater sampling was conducted using a combination of low-flow peristaltic pump and high-density polyethylene (HDPE) disposable bailers (for PFAS). A combination of methods was used by sampling PFAS separately, so as not to cross-contaminate samples, and inadvertently trigger PFAS concentrations through the use of the specified sampling equipment. Groundwater was gauged and samples using the peristaltic pump, followed by collection with HDPE bailers for PFAS testing.</p> <p>During the purging process, water was continuously measured for field parameters (Temperature, EC, Reduction-Oxidation potential (Redox), Dissolved Oxygen (DO) and pH) using a Hanna Multi Parameter 9829 positioned within an open flow-through cell. Once water quality parameters stabilised in accordance with NEPC (2013) guidelines (i.e. within $\pm 10\%$ for DO, $\pm 3\%$ for EC, ± 0.2 for pH, $\pm 0.2^\circ$ for temperature and $\pm 20\text{mV}$ for redox), groundwater sampling was undertaken. Groundwater from BH5M could not be sampled during the sampling event due to insufficient groundwater recovery.</p>
Decontamination Procedure	The water level probe and micro-purge pump were decontaminated with PFAS-free detergent solution (Alconox®), then rinsed with potable water followed by deionized PFAS-free water rinse before commencement of GME. The micro-purge system employed a disposable bladder and tubing, minimising potential (cross) contamination.
Sample Containers	<p>The following laboratory-supplied containers were used to collect groundwater samples:</p> <ul style="list-style-type: none"> ▪ One 250 mL HDPE bottle (unpreserved; for PFAS analysis); ▪ One, 500 mL amber glass, acid-washed and solvent-rinsed bottle; ▪ Two, 40mL amber glass vials, preserved with hydrochloric acid (1mL), Teflon-sealed; ▪ One, 250 mL HDPE bottle, preserved with nitric acid (1mL). ▪ Samples for priority metal analysis were field-filtered using 0.45 μm pore membranes.
Sample Storage, Preservation and Transportation	All containers were filled to the brim with sample, then capped and stored in chests with regular ice in zip-lock bags, until completion of the fieldwork and during sample transit to the laboratory. After sampling, refrigerated sample chests were transported to SGS under strict COC conditions. COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes (Appendix H).
Quality Control and Laboratory Analysis	Groundwater samples were analysed by SGS for the identified contaminants of concern. QA/QC testing comprised rinsate blank and an intra-laboratory (blind field) duplicate analysed by SGS, as well as an inter-laboratory (split field) duplicate analysed by Envirolab. Discussion of laboratory QA/QC results is presented Appendix J .

Activity/Item	Details
Laboratory Quality Assurance and Quality Control	The contracted laboratories conducted in-house QA/QC procedures, such as: Reagent blanks; Spike recoveries; Laboratory duplicates; Calibration standards and blanks; and Control standards. Laboratory reports are attached in Appendix H .

6. DATA QUALITY ASSESSMENT

The assessment of data quality is defined as the scientific and statistical evaluation of environmental results to determine if they meet the objectives of the project (USEPA, 2006). For this PSI, data quality assessment involved an evaluation of the compliance of the field (sampling) and laboratory procedures with established protocols, as well as the accuracy and precision of the associated results from the quality control measures. The findings are summarised in **Table 6-1** and discussed in detail in **Appendix J**.

In summary, the overall quality of the analytical data from this PSI was considered to be of an acceptable standard for interpretive use and preparation of an updated CSM.

Table 6-1 Quality Assurance Process

Stage	Control	Conformance [Yes, Part, No]	Report Section(s)
Preliminaries	SAQP with DQOs and DQIs established	Yes	Sections 5.1, 5.2 and 5.3
Field Work	Suitable documentation of fieldwork observations including borehole logs, notes.	Yes	Appendix G
Sampling Plan	Use of relevant and appropriate sampling plan	Yes	Section 5.4
	All media sampled	Yes	Appendix G
	Appropriate field duplicate, rinsate and trip blanks/spikes taken	Yes	Appendices J
	Use of approved and appropriate sampling methods	Yes	Section 5.6
	Preservation of samples upon collection and during transport to the laboratories	Yes	Sections 5.6 Appendix H
	Completed COC and SRA documentation	Yes	Appendix H
Laboratory	Sample holding times within acceptable limits	Yes	Appendices H and I
	Use of appropriate analytical procedures and NATA-accredited laboratories	Yes	Appendices H and I
	LOR low enough to meet adopted criteria	Yes	Appendices H and I
	Laboratory blanks	Yes	Appendices H and I
	Laboratory duplicates	Yes	Appendices H and I
	Matrix spikes	Yes	Appendices H and I
	Surrogates	Yes	Appendices H and I
	Checking for unusual or anomalous results (e.g. laboratory results inconsistent with field observations / measurements)	Yes	Appendices H and I
Reporting	Report reviewed by senior staff to confirm project meets EPA guidelines and objectives	Yes	See Document Control

7. RESULTS

7.1 Soil Field Results

7.1.1 Sub-Surface Conditions

Based on the logs for bores BH1-BH8 (**Appendix G**), the site sub-surface was generalised as a layer of silty clay fill (0.0-0.5m thickness), overlying natural clay (0.5 – 2.5m thickness) followed by siltstone (2.5 – 21m thickness). Refer to **Table 7-1** for more details.

Table 7-1 Generalised Sub-surface Profile

Layer	Material Description	Minimum to Maximum Depth (m BGL)
Fill	Silty CLAY Low to medium plasticity, dark brown, with rootlets, no odour.	0.0 - 0.50
Residual Soil	CLAY Low to medium plasticity, red – brown transitioning to grey at depth, trace sand – fine to medium grained, trace gravels – rounded, trace	0.5 - 2.50
Bedrock	Siltstone Extremely weathered, grey to pale brown	2.5 - 21.0

7.1.2 Field Observations

Drilled and sampled soils from the five boreholes were evaluated on a qualitative basis for odour and visual signs of contamination (e.g. hydrocarbon odours, oil staining, petrochemical filing, asbestos fragments, ash and charcoal) with the following observations noted:

- No olfactory odours were detected in any of the examined soils;
- No field indicators of ASS (i.e. sulfuric odour, jarosite, waterlogged soils) were observed in any of the examined soils; and
- No foreign materials (such as ash, slag or fragments of fibre cement sheeting) were encountered in any of the examined soils.

7.2 Groundwater Field Results

7.2.1 Monitoring Well Construction

Well construction details for the four, newly installed wells sampled during this assessment are summarised in **Table 7-2** and bore logs are presented in **Appendix F**.

Table 7-2 Monitoring Well Construction Details

Borehole ID	Top of Screened Section		Well Termination Depth		Screened Material
	Depth (m BEGL)	RL (m AHD)	Depth (m BEGL)	RL (m AHD)	
BH1M	7.9	72.4	10.9	69.4	Siltstone
BH2M	3.6	76.1	6.6	73.1	Siltstone
BH3M	3.2	73.3	6.2	70.3	Siltstone

Borehole ID	Top of Screened Section		Well Termination Depth		Screened Material
BH5M	6.1	74.6	12.1	68.6	Siltstone
BH6M	6.1	72.6	9.1	69.6	Siltstone

7.2.2 Field Observations

A GME was conducted on 6 May 2025. Field data were recorded before sampling, as presented in **Table 7-3**. Field data sheets are attached in **Appendix G**. Samples were then evaluated on the basis of odour and visual signs of contamination, with the following observations noted:

- Groundwater was found to be clear with the exception of BH5M and BH6M (turbid);
- PIDs measured in the well headspace ranged from 0.8 (BH5M) to 19.4 ppm (BH6M);
- No suspicious odours were detected in the monitoring wells with the exception of sulphur like odour at BH3M; and
- No sheen was observed on the sampled groundwater.

Table 7-3 Groundwater Field Data

Well ID	SWL (mBGL)	DO (mg/L)	pH	EC (µS/cm)	T (°C)	Redox (mV) ¹
BH1M	4.54	0.0	6.64	20,990	16.29	177.8
BH2M	4.45	0.0	6.71	11,990	16.52	173.6
BH3M	1.51	0.0	7.24	5,562	16.05	175.7
BH5M	6.38	0.0	7.45	1,584	17.66	177.7
BH6M	4.19	0.0	7.59	2,533	18.03	175.7

Footnotes:

1 Redox readings were adjusted to the Standard Hydrogen Electrode potential by adding field probe potential (205mV) to field readings

Field observations indicated that the groundwater was fresh to saline (EC 1,584 to 20,990 µS/cm), slightly acidic - alkaline (pH 6.64 to 7.59), oxidising conditions (Redox 173.6 to 177.8 mV) and oxygen depleted (DO 0.0 mg/L).

7.3 Laboratory Analytical Results

7.3.1 Soil Laboratory Analytical Results

A total of eight soil samples (0.0 - 1.0m BGL) from boreholes BH1M, BH2M, BH3M, BH5M and BH6M were chemically analysed for the COPCs listed in **Section 4.4**. A summary of laboratory analytical results is presented in **Table 7-2**. More detailed tabulation of results, showing the tested concentrations for individual samples alongside the adopted SILs, is presented in **Appendix B, Table B.1**.

All COPC concentrations were found to comply with the adopted SILs. Asbestos was not detected in any of the screened samples. The results indicated that gross, or widespread, contamination was not present on the site.

Table 7-4 Summary of Soil Analytical Results

Number of Primary Samples	Analyte	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Samples Exceeding SIL
Total Heavy Metal				
8	Arsenic	<PQL	7	None
8	Cadmium	<PQL	<PQL	None
8	Chromium	<PQL	22	None
8	Copper	<PQL	19	None
8	Lead	<PQL	27	None
8	Mercury	<PQL	<PQL	None
8	Nickel	<PQL	9.5	None
8	Zinc	<PQL	67	None
PAHs				
8	Naphthalene	<PQL	<PQL	None
8	Benzo(a)pyrene	<PQL	<PQL	None
8	Carcinogenic PAHs (as B(a)P TEQ)	<PQL	<PQL	None
8	Total PAH	<PQL	<PQL	None
BTEX				
8	Benzene	<PQL	<PQL	None
8	Toluene	<PQL	<PQL	None
8	Ethyl benzene	<PQL	<PQL	None
8	Xylenes (Total)	<PQL	<PQL	None
TRHs				
8	C ₆ -C ₁₀ (F1) TRHs	<PQL	<PQL	None
8	>C ₁₀ -C ₁₆ (F2) TRHs	<PQL	<PQL	None
8	>C ₁₆ -C ₃₄ (F3) TRHs	<PQL	230	None
8	>C ₃₄ -C ₄₀ (F4) TRHs	<PQL	<PQL	None
Pesticides				
5	total OCPs	<PQL	<PQL	None
5	total OPPs	<PQL	<PQL	None
PCBs				
5	total PCBs	<PQL	<PQL	None
Asbestos				
5	ACM (fibres)	Not detected	Not detected	None

Note 1 <PQL: below laboratory practical quantification limit

7.3.2 Groundwater Analytical Results

A summary of the groundwater analytical results is provided in **Table 7-5**. Detailed tabulation of results showing the concentrations for individual samples alongside the adopted soil criteria are presented in **Table B.3, Appendix B**.

Table 7-5 Summary of Groundwater Analytical Results

Number of Primary Samples	Analyte	Minimum Concentration (µg/L)	Maximum Concentration (µg/L)	Exceedance of adopted criteria
Priority Metals				
4	Arsenic	6	11	None
4	Cadmium	<PQL	3	None
4	Chromium (Total)	<PQL	0.1	None
4	Copper	<PQL	<PQL	None
4	Lead	<PQL	<PQL	None
4	Mercury	<PQL	<PQL	None
4	Nickel	1	4	None
4	Zinc	<PQL	8	None BH2M (8 µg/L) equals to ANZG of 8 µg/L
PAH				
3	Naphthalene	<PQL	<PQL	None
4	Benzo(α)pyrene	<PQL	<PQL	None
4	Total PAH	<PQL	<PQL	None
TRH				
4	F1	<PQL	54	BH6M (54 µg/L) detected
4	F2	71	290	BH1M (290 µg/L) detected BH2M (120 µg/L) detected BH3M (63 µg/L) detected BH6M (71 µg/L) detected
4	F3	<PQL	920	BH1M (920 µg/L) detected
4	F4	<PQL	790	BH1M (790 µg/L) detected
PFAS				
1	PFOA	<PQL	<PQL	None
1	PFBS	<PQL	<PQL	None
1	PFHxS	<PQL	<PQL	None
1	PFOS	<PQL	<PQL	None
BTEX				
4	Benzene	<PQL	<PQL	None
4	Toluene	<PQL	2	None
4	Ethylbenzene	<PQL	<PQL	None
4	m/p-xylene	<PQL	<PQL	None
4	o-xylene	<PQL	<PQL	None

Number of Primary Samples	Analyte	Minimum Concentration (µg/L)	Maximum Concentration (µg/L)	Exceedance of adopted criteria
VOCs				
1	Chloroform (THM)	<PQL	2.9	None
1	Total VOCs	<PQL	<PQL	None
Other				
1	Total OCP	<PQL	<PQL	None
1	Total OPP	<PQL	<PQL	None
1	Total PCB	<PQL	<PQL	None
3	Total Cyanide	<PQL	<PQL	None
1	Total Phenols	<PQL	<PQL	None

Note 1 <PQL: below laboratory practical quantification limit

All concentrations were below the adopted SAC, except for Zinc detected in BH2M equals to ANZG fresh water criteria and TRH were detected in all groundwater monitoring wells sampled.

8. SITE CHARACTERISATION

8.1 Subsurface Conditions

The sub-surface of the site to 21m BGL was generalised as a layer of anthropogenic, silty clay filling (0.0-0.5m thickness), overlying natural clay, ultimately grading into extremely weathered siltstone bedrock. The potential for acid sulphate and/or saline soils to be present was very low. The local groundwater table was encountered between 2.2m – 5.5m BGL.

8.2 Soil Impacts

For the EI soil samples, all COPC concentrations were found to comply with the adopted SILs. Asbestos was not detected in any of the screened samples. The results indicated that gross, or widespread, contamination was not present on the site.

The filling material was (preliminary) classified as *General Solid Waste*, in accordance with the EPA (2014) *Waste Classification Guidelines*.

8.3 Groundwater Impacts

Standing water levels (SWL) varied between 1.51 mBGL (BH3M) to 6.38 mBGL (BH5M).

Groundwater samples, were observed to be oxidising environmental conditions (Redox 173.6 to 177.8 mV), slightly acidic - alkaline (pH 6.64 to 7.59) and fresh to saline (EC 1,584 to 20,990 $\mu\text{S}/\text{cm}$).

The saline conditions verified at some of the wells (EC > 10,000 $\mu\text{S}/\text{cm}$) is anomalous and further investigation is recommended.

With reference to **Table B2 (Appendix B)**, contaminant concentrations in groundwater were reported below the adopted criteria, with the exception of the following:

- TRH-F1 was detected in BH6M at the concentration of 54 $\mu\text{g}/\text{L}$;
- TRH-F2 was detected in wells (BH1M, BH2M, BH3M and BH6M) at concentrations of 290 $\mu\text{g}/\text{L}$, 210 $\mu\text{g}/\text{L}$, 63 $\mu\text{g}/\text{L}$ and 71 $\mu\text{g}/\text{L}$ respectively;
- TRH-F3 was detected in well BH3M at a concentration of 930 $\mu\text{g}/\text{L}$; and
- TRH-F4 was detected in well BH3M at a concentration of 790 $\mu\text{g}/\text{L}$.

The TRH concentrations detected are below the applicable human health guideline values (HSL A and B) for low-density residential land use, indicating a low risk to human health. However, the TRH detections exceed the aquatic ecosystems threshold at all sampling locations.

8.4 Review of Conceptual Site Model

On the basis of the PSI findings, the CSM presented in **Section 4** was considered to appropriately identify contamination sources, migration mechanisms and exposure pathways, as well as potential on-site and off-site receptors. This model proposed that the potential for soil and/or groundwater contamination to exist on the site was low (to moderate at most). The subsequent field (sampling and analytical) component of this investigation confirmed this hypothesis.

Identified data gaps require closure in order to more fully demonstrate suitability of the site for the proposed development. These data gaps are:

- Further soil characterisation:

- Soil salinity and sodicity conditions
- Further groundwater characterisation:
 - Undertake an additional groundwater monitoring event to include:
 - Verification of groundwater conditions (particularly conductivity and TRH);
 - Determine groundwater flow direction (potentiometric slope).

9. CONCLUSION

The site, located at 135 Badgerys Creek Road, Bradfield, NSW was the subject of this PSI, the purpose being to assess the potential for contamination. The key findings of the investigation were as follows:

- The site has vacant (vegetated) land since 1949 and there was no evidence that market / orchard gardening took place on the site.
- The local surroundings had been comprised primarily of low density residential farmland properties since the 1949 at least with the exception of;
 - Former OTC Site Group - Bringelly Radio Receiving Station decommissioned in 2002 and has no evidence of explosive ordinance activity or potentially contaminating activity.
 - Advanced Manufacturing Readiness Facility, currently active (0.4m east)
 - SSTOM – Bradfield, currently active (0.4m east)
 - Crane Force storage yards and depot, currently active (20.6m west)
- The site was free of statutory notices and licensing agreements issued by the EPA under the Contaminated Land Management Act 1997 and Protection of the Environment Operations Act 1997. It was not included on the List of NSW Contaminated Sites Notified to the EPA, nor was it of interest to the NSW Government PFAS Investigation Program.
- No evidence of infrastructure associated with an underground storage tank was observed on the site. No aboveground storage tank was present.
- The sub-surface of the site to 21m BGL was generalised as a layer of anthropogenic, silty clay filling (0.0-0.5m thickness), overlying natural clay, ultimately grading into extremely weathered siltstone bedrock.
- The potential for acid sulphate be present was very low, however there was an elevated risk saline.
- No ash, slag or other foreign materials (including ACM) was observed in recovered fill or natural soil.
- No odour was observed in soil recovered from any of the boreholes.
- The laboratory analytical results for the representative soil samples were found to comply with the adopted investigation levels applicable to residential settings with accessible soils.
- Asbestos was not detected (at a reporting limit of 0.01 %w/w) in samples of fill recovered from each of the seven investigation locations.
- Groundwater standing levels ranged from 1.51 mBGL (BH3M) to 6.38 mBGL (BH5M).
- PIDs measured in the well headspace ranged from 0.8 (BH5M) to 19.4 ppm (BH6M);
- No suspicious odours were detected in the monitoring wells with the exception of sulphur like odour at BH3M; and
- No sheen was observed on the sampled groundwater.
- Groundwater was fresh to saline (EC 1,584 to 20,990 $\mu\text{S}/\text{cm}$), slightly acidic - alkaline (pH 6.64 to 7.59), oxidising conditions (Redox 173.6 to 177.8 mV) and oxygen depleted (DO 0.0 mg/L).
- The saline conditions verified at some of the wells (EC > 10,000 $\mu\text{S}/\text{cm}$) is anomalous and further investigation is recommended.

- All COPC concentrations in groundwater were found to comply with the adopted criteria except for the following:
 - TRH-F1 was detected in BH6M at the concentration of 54 µg/L;
 - TRH-F2 was detected in wells (BH1M, BH2M, BH3M and BH6M) at concentrations of 290 µg/L, 210 µg/L, 63 µg/L and 71 µg/L respectively;
 - TRH-F3 was detected in well BH3M at a concentration of 930 µg/L; and
 - TRH-F4 was detected in well BH3M at a concentration of 790 µg/L.
- The TRH concentrations detected are below the applicable human health guideline values (HSL A and B) for low-density residential land use, indicating a low risk to human health. However, the TRH detections exceed the aquatic ecosystems threshold at all sampling locations.
- The CSM developed for the site (**Section 4**) appropriately identified contamination sources, migration mechanisms and exposure pathways, as well as potential on- and off- site receptors. The risks posed to receptors by potential contaminants in soil were considered to be negligible.

Based on the findings of this PSI with limited sampling and with consideration of EI's *Statement of Limitations* (**Section 11**), EI concluded that gross or widespread contamination was not present within the investigation area. The site can be made suitable for the proposed development, in accordance with the *Contaminated Land Management Act 1997* and *State Environmental Planning Policy (Resilience and Hazards) 2021*, provided the recommendations detailed in **Section 10** are implemented.

10. RECOMMENDATIONS

EI makes the following recommendations in relation to the future site development:

- Undertake an additional groundwater monitoring event to further characterise groundwater conditions and determine groundwater flow direction (potentiometric slope).
- A Salinity Management Plan (SMP) is recommended to assess the saline and sodic soil conditions and provide management for the soils to be disturbed during the proposed development.
- A waste management plan should be prepared, to classify of waste material and surplus material including potential virgin excavated natural material (VENM) to be removed from the site, in accordance with the NSW EPA (2014) Waste Classification Guidelines, Protection of the Environment Operations Act 1997, and Work Health and Safety Regulation 2017. In designing the SAQP for waste classification, the EPA (2022a) *Sampling Design Part 1 - Application* guidelines should be referred to and the analytical suite is to include the identified COPCs (**Section 4.4**). The analytical results from this PSI can be utilised for this purpose.
- Any soil/fill material imported onto the site should be assessed. Imported soil must be classified as virgin excavated natural material (VENM) or have a classification certificate indicating it is suitable for the proposed land use;
- An unexpected finds protocol following site demolition and during site excavation to ensure any potential contamination sources (such as soil staining and odour, buried asbestos or underground storage tanks) are identified and managed in accordance with NSW EPA legislation and guidelines;

EI believes that these recommendations can be managed through the development approval process, as conditions of consent, in accordance with *State Environmental Planning Policy (Resilience and Hazards) 2021*.

11. STATEMENT OF LIMITATIONS

The findings presented in this report are the result of discrete and specific sampling methodologies used in accordance with best industry practices and standards. Due to the site-specific nature of soil sampling from point locations, it is considered likely that all variations in subsurface conditions across a site cannot be fully defined, no matter how comprehensive the field investigation program.

While normal assessments of data reliability have been made, EI assumes no responsibility or liability for errors in any data obtained from previous assessments conducted on site, regulatory agencies (e.g. Council, EPA), statements from sources outside of EI, or developments resulting from situations outside the scope of works of this project.

Despite all reasonable care and diligence, the ground conditions encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated. In addition, site characteristics may change at any time in response to variations in natural conditions, chemical reactions and other events, e.g. groundwater movement and or spillages of contaminating substances. These changes may occur subsequent to EI's investigations and assessment.

EI's assessment is necessarily based upon the result of the site investigation and the restricted program of surface and subsurface sampling, screening and chemical testing which was set out in the proposal. Neither EI, nor any other reputable consultant, can provide unqualified warranties nor does EI assume any liability for site conditions not observed or accessible during the time of the investigations.

This report was prepared for the use of Creative Vision, and no responsibility is accepted for use of any part of this report in any other context or for any other purpose or by other third parties. This report does not purport to provide legal advice.

This report and associated documents remain the property of EI subject to payment of all fees due for this assessment. The report shall not be reproduced except in full and with prior written permission by EI.

REFERENCES

- ASSMAC (1998) *Acid Sulfate Soil Manual*, Acid Sulfate Soils Management Advisory Committee, New South Wales Agriculture, Wollongbar, New South Wales, 28 August 1998.
- DMR (1991) *Penrith 1:100,000 Geological Series Sheet 9030*, Geological Survey of New South Wales, Department of Mineral Resources.
- DPIE (2024) *eSPADE v2.2 Portal*, New South Wales Department of Planning, Industry and Environment, 2024 (retrieved from www.espade.environment.nsw.gov.au).
- DUAP/EPA (1998) *Managing Land Contamination. Planning Guidelines SEPP 55 - Remediation of Land*, New South Wales Department of Urban Affairs and Planning / Environment Protection Authority of New South Wales, August 1998.
- LandInsight Pty Ltd (2025) Due Diligence Report – 135 Badgerys Creek Road, Bradfield NSW, Land Insight Pty Ltd, April 2025.
- EnRisk (2016) *Proposed Decision Tree for Prioritising Sites Potentially Contaminated with PFASs*, Environmental Risk Services Pty Ltd, Environment Protection Authority of New South Wales, 25 February 2016.
- Group GSA (2024) Architectural Plans (WIP), Project No. MP3086, Group GSA, 12 February 2024, 9 pages.
- HEPA (2020) *PFAS National Environmental Management Plan*, National Chemicals Working Group of the Heads of the EPAs Australia and New Zealand, January 2020.
- Liverpool City Council (2008) *Liverpool Development Control Plan 2008*, Liverpool City Council, August 2008.
- Liverpool City Council (2008) *Liverpool Local Environmental Plan 2008*, Liverpool City Council, August 2008.
- Mecone (2025) *Mosaic – Interactive Planning and Mapping Platform*, Mecone, April 2025. Available at: <https://meconemosaic.au>
- NEPC (1999) *National Environmental Protection (Assessment of Site Contamination) Measure 1999*, National Environmental Protection Council, December 1999.
- NEPC (2013) *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013*, National Environment Protection Council, Document OPC50357-B, 11 April, 2013.
- NSW EPA (2014) *Waste Classification Guidelines – Part 1: Classifying Waste*, Environment Protection Authority of New South Wales, EPA 2014/0796, November 2014.
- NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme: Contaminated Land Guidelines* (Third Edition), Environment Protection Authority of New South Wales, EPAP0269, October 2017.
- NSW EPA (2020) *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, Environment Protection Authority of New South Wales, EPA 2020P2233, April 2020.
- NSW EPA (2022a) *Sampling Design Part 1 - Application: Contaminated Land Guidelines*, Environment Protection Authority of New South Wales, EPA 2022P3915, August 2022.
- NSW EPA (2022b) *Sampling Design Part 2 – Interpretation: Contaminated Land Guidelines*, Environment Protection Authority of New South Wales, EPA 2022P3916, August 2022.
- NSW Government (1997) *Contaminated Land Management Act 1997 (CLM Act)*;
- NSW Government (1997) *Protection of the Environment Operations Act, 1997 (POEO Act)*;
- NSW Government (1979) *Environmental Planning and Assessment Act, 1979 (EP&A Act)*;

NSW Government (2011) Work Health and Safety Act 2011 (WHS Act)

NSW Government (2017) Work Health and Safety Regulation

NSW Government (2021a) *State Environmental Planning Policy (Resilience and Hazards) 2021*, 4 August 2023.

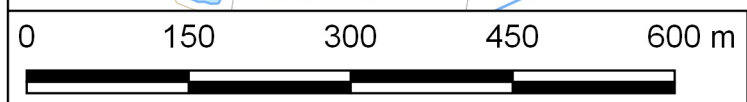
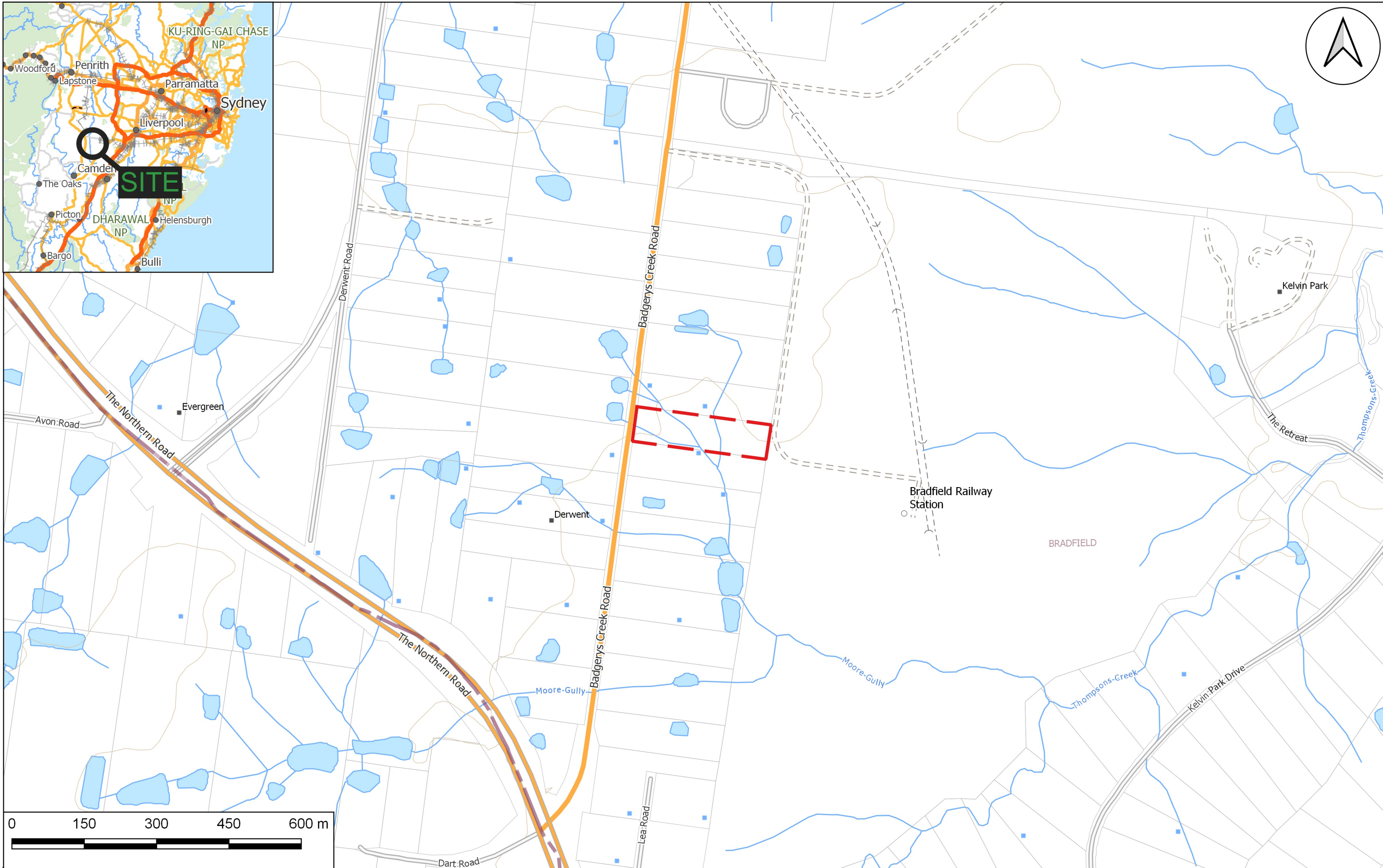
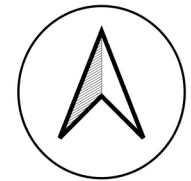
NSW Government (2021b) *State Environmental Planning Policy (Precincts – Western Parkland City) 2021*, 5 September 2025

NSW Government (2025) Request for Secretary's Environmental Assessment Requirements (SEARS) – Mixed-use residential and commercial development – SSD-77458970

WADOH (2021) *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*, Published by the Government of Western Australia Department of Health, August 2021.

WaterNSW (2025) Real-Time Water Data Portal, WaterNSW, April 2025. Available at: <https://realtimedata.waternsw.com.au/water.stm>.

Appendix A – Figures



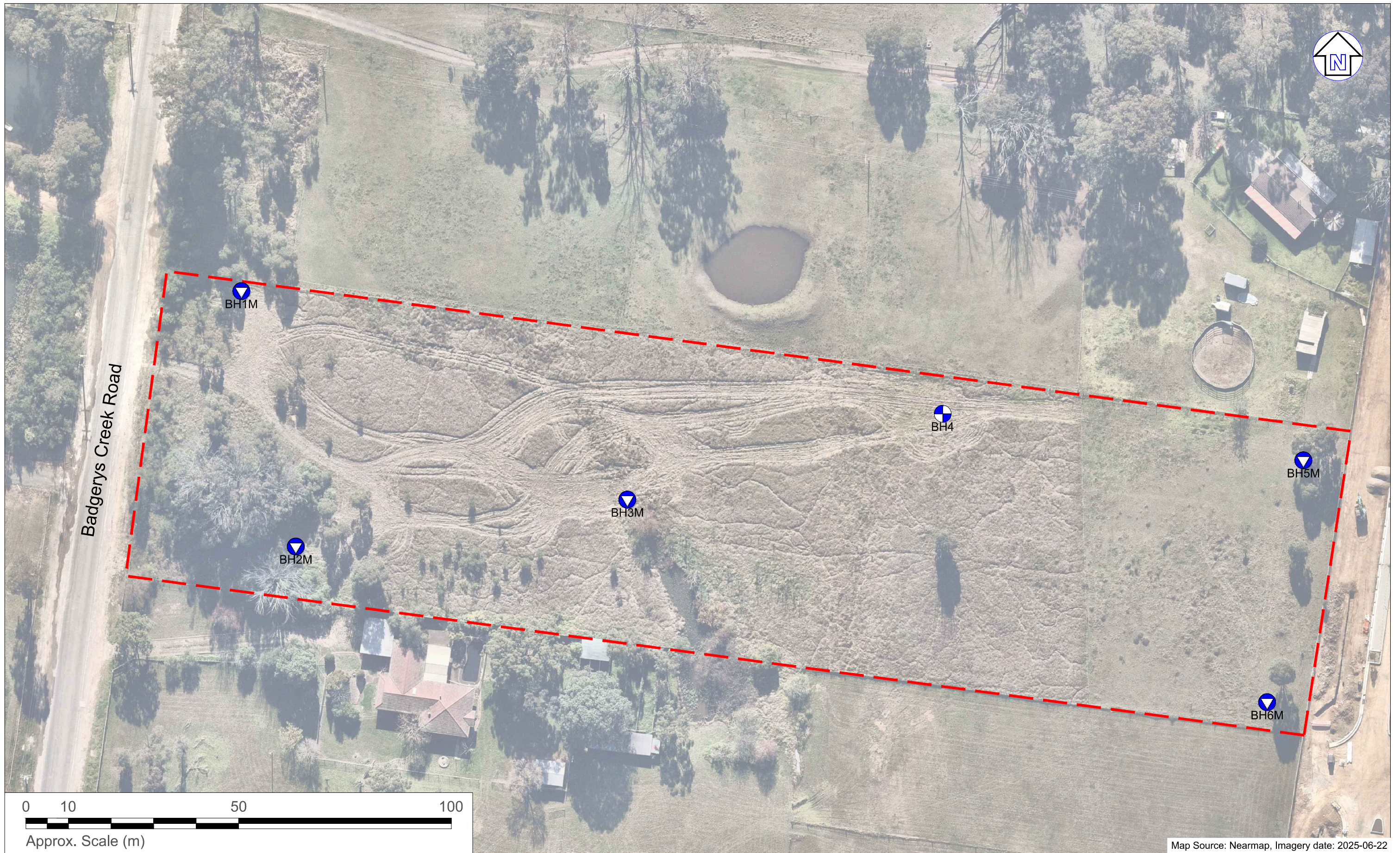
LEGEND	Note: All locations are approximate
Site Boundary	

Practical Solutions for Built Environments
 Suite 6.01, 55 Miller Street, PYRMONT 2009
 Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	A.L.
Approved:	-
Date:	10/07/2025

Creative Vision
 Preliminary Site Investigation with Targeted Sampling
 135 Badgerys Creek road, Bradfield, NSW
 Site Locality Plan

Figure:	1
Project:	E26733.E01



LEGEND (All Locations are Approximate)

- - - Site boundary
- Borehole location
- ▼ Borehole / monitoring well location



Drawn:	L.C.
Approved:	S.R.
Date:	10-07-25

Creative Vision
 Preliminary Site Investigation with Targeted
 Sampling
 135 Badgerys Creek Road, Bradfield, NSW
 Sampling Location Plan

Figure:
2
 Project: E26733.E01

Appendix B – Results Table

Table B.1 – Summary of the Analytical Results

E26733.E01 - Bradfield

Sample ID	Sampling Date	Total Heavy Metals								PAHs				BTEX				TRHs				OCPs	OPPs	Total PCBs	Asbestos Presence / Absence		
		As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Carcinogenic PAHs (as B(a)P TEQ)	Benzo(a)pyrene	Total PAHs	Naphthalene	Benzene	Toluene	Ethylbenzene	Total Xylenes	F1	F2	F3	F4						
Fill Soils																											
BH01_0.0-0.1	4/23/2025	7	<0.3	22	16.0	25.0	<0.05	7.8	40.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	110	<120	<0.1	<1.7	<0.1	No		
BH02_0.0-0.1		6	<0.3	14	18.0	27.0	<0.05	9.5	67.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	230	<120	<0.1	<1.7	<0.1	No		
BH03_0.4-0.5	4/24/2025	5	<0.3	16	15.0	16.0	<0.05	8.7	21.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<0.1	<1.7	<0.1	No		
BH05_0.0-0.1	4/29/2025	5	<0.3	11	19.0	15.00	<0.05	4.8	29.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<0.1	<1.7	<0.1	No		
BH06_0.0-0.1	4/30/2025	6	<0.3	10	12.0	12.0	<0.05	6.9	19.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<0.1	<1.7	<0.1	No		
Statistical Analysis																											
Minimum Concentration		5	<0.3	10	12	12	<0.05	5	19	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	110	<120	<0.1	<1.7	<0.1	No		
Maximum Concentration		7.0	<0.3	22.0	19.0	27.0	<0.05	9.5	67.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	230.0	<120	<0.1	<1.7	<0.1	No		
Natural Soils																											
BH01_0.3-0.4	4/23/2025	6	<0.3	16	20.0	12.0	<0.05	6.2	31.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA		
BH03_0.9-1.0	4/24/2025	5	<0.3	13	20.0	13.0	<0.05	7.9	34.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA		
BH05_0.4-0.5	4/29/2025	4	<0.3	10	25.0	12.0	<0.05	5.9	40.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA		
Statistical Analysis																											
Minimum Concentration		<1	<0.3	<0.5	<0.5	<1	<0.05	<0.5	<2	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA		
Maximum Concentration		<1	<0.3	16.0	25.0	13.0	<0.05	7.9	40.0	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA		
NEPM (2013) Criteria																											
¹ NEPC (2013) HIL A - Residential (with garden/accessible soil)		100	20	100 Cr(VI)	6,000	300	40	400	7,400	3	NR	300											240	NR	1		
² NEPC (2013) HSL-A&B Low to high density residential settings (sand-dominated soils)		Source depths (0 m to <1 m BGL)											3	0.5	160	NL	40	45	110								
		Source depths (1 m to <2 m BGL)											NL	0.5	220	NL	60	70	240								
		Source depths (2 m to < 4 m BGL)											NL	0.5	310	NL	95	110	440								
		Source depths (4 m + BGL)											NL	0.5	540	NL	170	200	NL								
³ EIL/ESL for Urban Residential and Public Open Space		100	NC	580 Cr _{VI}	140	1100	NC	65	360	NC	0.7	NC	170	65	105	125	45	180	120	1,300	5,600	180	NC	NC	NC		
NEPC (2013) HSL-B visible ACM on ground surface																									Absent		

Footnotes:

All results are recorded in mg/kg, except asbestos is presence/absence identification (at 0.01% w/w semi-quantitative detection limit) or % w/w (gravimetric qualitative method)

- Highlighted value indicates asbestos presence
- Highlight value indicates exceedence of guideline

- NR No current published criterion.
- NL Not Limiting
- NA Not analysed
- NC No criterion available
- NEPC¹ HIL - Health based investigation levels.
- NEPC² HSL - Health based screening levels for vapour intrusion - Coarse Grained soil values were applied, being the most conservative of the material types.
- NEPC³ EIL - Ecological investigation levels and ESL - Ecological screening levels. These are generic and site-specific values derived for the site using ASC NEPM Schedule B1, Tables 1B(1), 1B(2), 1B(3), 1B(4), 1B(5) and 1B(6). EILs / ESLs only apply to the top 2.0 m (root zone).
- F1 TRHs C₆-C₁₀ TRHs, less the sum concentration of BTEX
- F3 TRHs >C₁₆-C₃₄ TRHs
- F4 TRHs >C₃₄-C₄₀ TRHs

Table B.2 – Summary of Soil Investigation Results

E26733- Bradfield

Sample ID	Sampling Date	Priority Metals								PAHs		BTEX				TRHs		Pesticides		PCBs	Presence / absence
		As	Cd	Cr [#]	Cu	Pb	Ni	Zn	Hg	Benzo(a)pyrene	Total PAHs	Benzene	Toluene	Ethylbenzene	Total Xylenes	C6 - C9	C10 - C36	OCPs	OPPs		
BH01_0.0-0.1	12/05/2025	7	<0.3	22	16.0	25.0	7.8	40.0	<0.05	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	120	<0.1	<1.7	<0.1	Absent
BH02_0.0-0.1		6	<0.3	14	18.0	27.0	9.5	67.0	<0.05	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	260	<0.1	<1.7	<0.1	Absent
BH03_0.4-0.5		5	<0.3	16	15.0	16.0	8.7	21.0	<0.05	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<1.7	<0.1	Absent
BH05_0.0-0.1		5	<0.3	11	19.0	15.00	4.8	29.0	<0.05	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<1.7	<0.1	Absent
BH06_0.0-0.1		6	<0.3	10	12.0	12.0	6.9	19.0	<0.05	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<1.7	<0.1	Absent
BH01_0.3-0.4		6	<0.3	16	20.0	12.0	6.2	31.0	<0.05	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	N.A.	N.A.	N.A.	Absent
BH03_0.9-1.0		5	<0.3	13	20.0	13.0	7.9	34.0	<0.05	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	N.A.	N.A.	N.A.	Absent
BH05_0.4-0.5		4	<0.3	10	25.0	12.0	5.9	40.0	<0.05	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	N.A.	N.A.	N.A.	Absent
Statistical Analysis																					
Maximum concentration		7	0	22	25	27	10	67	<0.05	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	260	<0.1	<1.7	<0.1	Absent
NSW EPA (2014) Waste Classification Criteria																					
General Solid Waste	CT1 (mg/kg)	100	20	100		100	40		4	0.8	200	10	288	600	1000	650	10000	<50	250	<50	If detected material is Special Waste - Asbestos Waste
	TCLP1 (mg/L)	5	1	5		5	2		0.2	0.04		0.5	14.4	30	50						
	SCC1 (mg/kg)	500	100	1900		1500	1050		50	10	200	19	518	1080	1800	650	10000	<50	250	<50	
Restricted Solid Waste	CT2 (mg/kg)	400	80	400		400	160		16	3.2	800	40	1152	2400	4000	2600	40000	NR	1000	NR	
	TCLP2 (mg/L)	20	4	20		20	8		0.8	0.16		2	57.6	120	200						
	SCC2 (mg/kg)	2000	400	7600		6000	4200		200	23	800	72	2073	4320	7200	2600	40000	<50	1000	50	
Special Waste																					

Notes:

Results are recorded in mg/kg

- GSW NSW EPA 2014 General Solid Waste Thresholds, in Waste Classification Guidelines, Table 1 (CT1) and Table 2 (TCLP1 / SCC1)
- RSW NSW EPA 2014 Restricted Solid Waste Thresholds, in Waste Classification Guidelines, Table 1 (CT2) and Table 2 (TCLP2 / SCC2)
- # Thresholds are for Chromium VI.
- NA Not Analysed
- NC Not calculated
- F1 To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
- F2 To obtain F2 subtract naphthalene from the >C10-C16 fraction.
- F3 (>C16-C34)
- F4 (>C34-C40)

Highlighted indicates exceedance of ENM Exemption and Order (NSW EPA, 2014).



Table B.3 - Groundwater Analytical Results for Groundwater Monitoring Events

Sample Identification	Date	Metals									BTEX					PAHs ⁹			TRHs				VOCs ⁸		Total OCP	Total OPP	Total PCB	Total Cyanide	Total Phenols	VOCs ⁸			
		Al	As	Cd	Cr ³	Cu	Pb	Ni	Zn	Hg	Benzene	Toluene	Ethylbenzene	m + p-xylene	o-xylene	Benzo(a)pyrene	Naphthalene	Total PAH	F1	F2	F3	F4	Chloroform (THM)	Total VOCs						Perfluorooctanoic acid (PFOA)	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHS)	Perfluorooctane sulfonic acid (PFOS)
BH1M	7/05/2025	9	<1	<0.1	<1	<1	<1	4	7	<0.1	<0.5	<0.5	<1	<0.5	<0.1	<0.5	N.A.	<50	290	920	790	2.9	<10	<1	<PQL	<5	N.A.	<0.05	<0.01	<0.01	<0.01	<0.01	
BH2M		6	1	0.1	<1	<1	<1	4	8	<0.1	<0.5	<0.5	<1	<0.5	<0.1	<0.5	<1	<50	120	<500	<500	N.A.	N.A.	N.A.	N.A.	N.A.	<4	<0.05	N.A.	N.A.	N.A.		
BH3M		6	1	<0.1	<1	<1	<1	4	6	<0.1	<0.5	<0.5	<1	<0.5	<0.1	<0.5	<1	<50	63	<500	<500	N.A.	N.A.	N.A.	N.A.	N.A.	<4	<0.05	N.A.	N.A.	N.A.		
BH6M		11	3	<0.1	<1	<1	<1	1	<5	<0.1	<0.5	2	<0.5	<1	0.9	<0.5	<1	54	71	<500	<500	N.A.	N.A.	N.A.	N.A.	N.A.	<4	<0.05	N.A.	N.A.	N.A.		
Statistical Summary																																	
Maximum Concentration		11	3	0.1	<1	<1	<1	4	8	<0.1	<0.5	2	<0.5	<1	0.9	<0.5	<1	54	290	920	790	2.9	<10	<1	<PQL	<5	N.A.	<0.05	<0.01	<0.01	<0.01		
Guidelines																																	
ANZG (2018) ¹	Fresh Water	55	24 (As III) 13 (As V)	0.2	3.3 (CrIII) ⁶ 1.0 (CrVI)	1.4	3.4	11	8	0.06 ⁵	950	180	80	275	350	0.1	16	50 ⁴	60 ⁴	500 ⁴	500 ⁴	770					7	320					
NEPM (2025) ¹¹	Fresh Water																									220			0.13				
NHMRC (2025) ²	Recreational Water ^{2a}	100	20		1,000 [*]	100	200	3,000 [*]	10	10	25 [*]	3 [*]	20 [*]	20 [*]	0.1			1000	1000							800	2	10	0.3	0.08			
NEPC (2013)	HSL A&B - Low density residential	Source depth 2m to <4m									800	NL	NL	NL	NL		NL		1000	1000													
		Source depth 4m to <8m									800	NL	NL	NL	NL		NL		1000	1000													
		Source depth 8m+									900	NL	NL	NL	NL		NL		1000	1000													

Notes:
 All values are µg/L unless stated otherwise
 F1 C6-C10 minus BTEX
 F2 >C10-C16 minus naphthalene
 F3 (>C16-C34)
 F4 (>C34-C40)

¹ Groundwater Investigation Levels for fresh and marine water, based on ANZG (2018) Australian and New Zealand Guidelines for 95% protection level.
² Based on NHMRC (2025 - update June 2025 version 4.0) Drinking Water Guidelines.
^{2a} The lowest of the Health Guideline x10 or the Aesthetic Guideline has been chosen as the assessment criteria. Aesthetic based criteria have been indicated by *
³ Value is for total Chromium
⁴ In lack of a criteria the laboratory PQL has been used (DEC, 2007).
⁵ To account for the bioaccumulating nature of this toxicant, 99% species protection level DGV is used for slightly to moderately disturbed systems. Refer to Warne et al. (2017) for details.
⁶ Figure may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance.
⁷ Guideline value provided for when the water pH >6.5
⁸ Listed all tested main VOC, all the other tested VOCs were below PQL.
⁹ Listed all tested main PAHs, all the other tested PAHs were below PQL.
¹⁰ Low reliability criteria
¹¹ PFAS National Environmental Management Plan 3.0

Highlighted indicates values exceeded criteria
 Highlighted indicates criteria not met

Table B.4 - Soil and Groundwater RPD values

Sample identification	Description	Date	TRH				BTEX				Metals							
			F1	F2	F3	F4	Benzene	Toluene	Ethylbenzene	O-Xylene	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Nickel	Zinc	Mercury
Soil Investigation																		
Intra-laboratory Duplicate																		
BH01_0.0-0.1	Soil	4/22/2025	<25	<25	110	<120	<0.1	<0.1	<0.1	<0.3	7	<0.3	22	16	25	8	40	<0.05
QD1	Field Duplicate of BH01_0.0-0.1		<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	7	<0.3	22	13	23	9	41	<0.05
	RPD	-	NA	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.69	8.33	9.76	2.47	0.00	
Inter-laboratory Duplicate																		
BH01_0.0-0.1	Soil	4/22/2025	<25	<25	210	<120	<0.1	<0.1	<0.1	<0.3	2	0.3	2.8	18	110	1	600	0.08
QT1	Field Duplicate of BH01_0.0-0.1		<25	<150	120	<100	<0.2	<0.5	<1	<1	<4	0.6	4	26	170	3	2800	0.1
	RPD	-	0.00	0.00	54.55	0.00	0.00	0.00	0.00	0.00	66.67	66.67	35.29	36.36	42.86	72.73	129.41	22.22
Rinsate																		
QR1	Equipment Rinsate	11/2/2025	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<1	<5	<0.1
Trip Blank and Trip Spike																		
TB	Soil Trip Blank	11/2/2025	-	-	-	-	<0.1	<0.1	<0.1	<0.3	-	-	-	-	-	-	-	-
TS	Soil Trip Spike	11/2/2025	-	-	-	-	[129%]	[97%]	[83%]	-	-	-	-	-	-	-	-	-
Groundwater Investigation																		
Intra-laboratory Duplicate																		
BH1M	Primary sample	7/5/2025	<50	290	920	790	2000	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	4	7	<0.1
QD1	Duplicate of BH1M		<50	<60	<500	<500	<320	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	3	6	<0.1
	RPD	-	0.00	131.43	59.15	44.96	144.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.57	15.38	0.00
Inter-laboratory Duplicate																		
BH1M	Primary sample	7/5/2025	<50	290	920	790	2000	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	4	7	<0.1
QT1	Duplicate of BH1M		<10	<50	<100	<100	<1	<1	<3	<1	<0.1	<1	<1	<1	<1	4	6	<0.05
	RPD	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.38	0.00
Rinsate																		
QR1	Equipment Rinsate	7/5/2025	<50	<60	<500	<500	<0.5	<0.5	<0.5	<0.5	<1	<0.1	<1	<1	<1	<1	<5	<0.1
Trip Blank and Trip Spike																		
TB	Soil Trip Blank	7/5/2025	-	-	-	-	<0.5	<0.5	<0.5	<1	-	-	-	-	-	-	-	-
TS	Soil Trip Spike	7/5/2025	-	-	-	-	[102%]	[102%]	[102%]	-	-	-	-	-	-	-	-	-

NOTE: All results are reported in mg/kg (soil) or µg/L (water)

44.55	RPD calculated by halving detection limit exceeds 30-50% range referenced from AS4482.1 (2005)
52.87	RPD exceeds 30-50% range referenced from AS4482.1 (2005)

BOLD = Composite value of primary sample

F1 = TRH C6-C10 less the sum of BTEX

F2 = TRH >C10-C16 less naphthalene

F3 = TRH >C16-C34

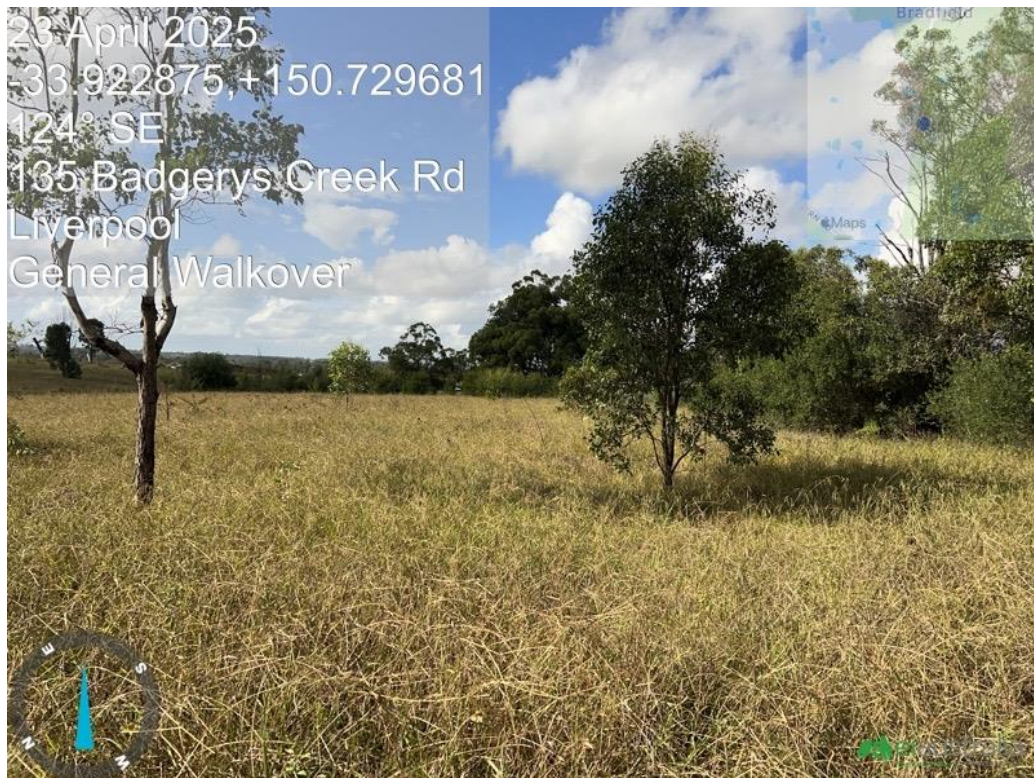
F4 = TRH >C34-C40

¹ Value shown is the lowest recovery value reported for xylenes

Appendix C – Site Photographs



Photograph 1: General view of the site from the site entry at Badgerys Creek road looking east.



Photograph 2: General view of the site from the western side, looking east.



Photograph 3: General view of site from middle of the site looking west back towards Badgerys Creek road.



Photograph 4: General site conditions taken from the middle of the site facing east, showing metro construction site in the distance.

Appendix D – Groundwater Bore Search

ALL GROUNDWATER MAP

All data times are Eastern Standard Time

Map Info

State Overview

[State Overview](#)

Rivers and Streams

[favourites](#)
[search](#)
[download sites](#)
[find a site](#)

Real Time Data - Rivers And Streams

Daily River Reports

Daily River Reports

Dams

[favourites](#)
[search](#)
[download sites](#)
[find a site](#)

Real Time Data - Major Dams

Groundwater (Telemetered data)

[favourites](#)
[search](#)
[download sites](#)
[find a site](#)

Real Time Data - Bores

All Groundwater Site details

[search](#)
[download sites](#)
[find a site](#)

[search by licence](#)

All Groundwater Map

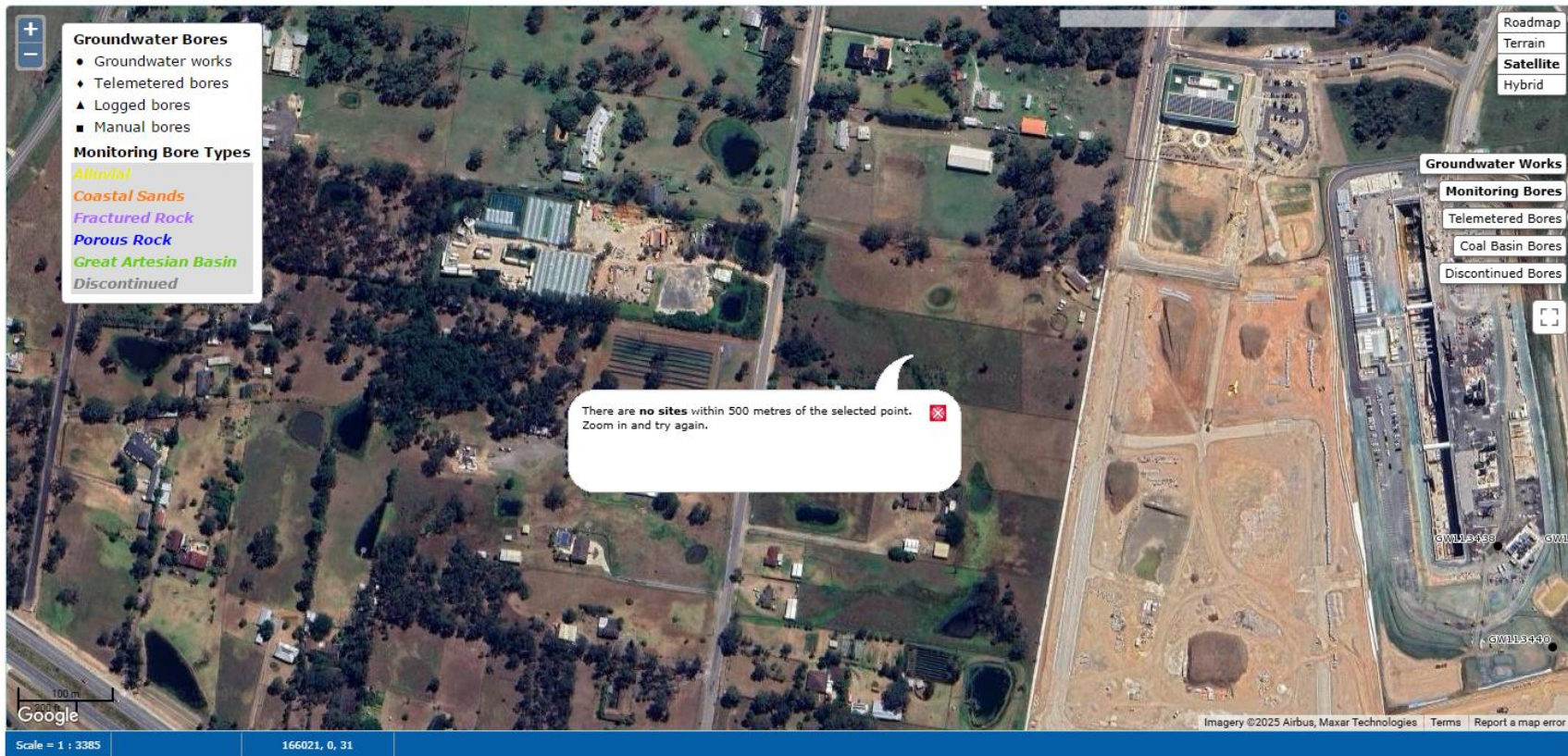
Meteorology

[favourites](#)
[search](#)
[download sites](#)
[find a site](#)

Real Time Data - Weather Stations

Hunter River Salinity Trading Scheme

[Hunter River Salinity Trading Scheme](#)



[Roadmap](#)
[Terrain](#)
[Satellite](#)
[Hybrid](#)

[Groundwater Works](#)
[Monitoring Bores](#)
[Telemetered Bores](#)
[Coal Basin Bores](#)
[Discontinued Bores](#)

Scale = 1 : 3385 166021, 0, 31

Appendix E – Land Insight: Due Diligence Report

Due Diligence Insight Report

135 Badgerys Creek Rd
Bradfield, NSW

15 Apr 2025






Report n°:
LI-4711 DDR

Understanding your report

Thank you for ordering your report from Land Insight. If you have any feedback, questions or queries, please get in touch with us at orders@landinsight.co.

Your Report has been produced by Land Insight and contains information related to current and historical land use information, environmental risks and hazards.

The information presented in this report includes Land Insights' comprehensive research into current and historical land use derived from Land Insight's proprietary National Land Use Atlas (NLUA), environmental risk information and data available from public databases, third party providers, local and state authorities. The report also includes detailed property and soil setting information, hydrogeology, identification of potential pollution and contamination along with ground and natural hazards. The records identified are presented within a 200 to 2000m radius (buffer zone) from the boundaries of the Property searched, depending on the screened constraint. The report is separated and grouped into easy to navigate sections as per Summary below:

	Section 1	PROPERTY SETTING	Sensitive Receptors, Planning Controls, Zoning, Heritage, Soil and Land Information, Geology and Topography
	Section 2	HYDROGEOLOGY AND GEOTECHNICAL	Groundwater Bores and Other Borehole investigations, Groundwater Dependent Ecosystems (GDE), Aquifer and Wetland, Other Hydrogeology information.
	Section 3	ENVIRONMENTAL REGISTERS, LICENCES AND INCIDENTS	Contaminated Land Public Register, Licences, Audits and Orders, Sites Regulated by Other Jurisdictional Body (Former Gaswork sites / PFAS sites, UXO Areas), Historical Landfills, Derelict Mines and National Pollutant Inventory (NPI).
	Section 4	POTENTIALLY CONTAMINATED AREAS	Potentially Contaminating activities (Industries, businesses and activities that may cause contamination), Historical Potentially Contaminating activities and Historical Land Use.
	Section 5	NATURAL HAZARDS	Erosion hazard, Flood hazards, Bushfire prone land and Bushfire history.

This report includes data listed on page 4 (table of contents). All sources of data and definitions are provided in the Product Guide (Attached). For a full list of references, metadata, publications or additional information not provided in this report, please contact orders@landinsight.co.

This report does not include information derived from a physical inspection. It is important to note that a site inspection can present information relevant to other risks and hazards that may not be identified by this Report.

Due to the ongoing nature of database development and frequency of updates provided by various state government regulators and data sources, the data displayed within this report is only current from date of production. While every effort is made to ensure the details in your Report are correct, Land Insight cannot guarantee the accuracy or completeness of the information and/or data provided.

This Report, and your use of it, is regulated by Land Insight's Terms and Conditions. For more information, see Land Insight's Product Guide.

Report Summary

Dataset name		Onsite	On Buffer	Buffer Distance
Section 1 - Property Setting				
1.1	Sensitive Receptors	✓	✓	200m
1.2a	Planning Controls (<i>Zoning</i>)		✓	500m
1.2b	Planning Overlays (<i>Environmental Planning Instruments</i>)		✓	500m
	Planning Overlays (<i>Other Planning Information</i>)			500m
1.3	Heritage (<i>State and Local Heritage</i>)			200m
	Heritage (<i>Australian and World Heritage Database Register</i>)			200m
1.4a	Soil and Land Use Information (<i>Soil Landscape</i>)	✓	✓	500m
	Soil and Land Use Information (<i>Soil Salinity</i>)	✓	✓	500m
	Soil and Land Use Information (<i>Radon</i>)	✓	✓	500m
1.4b	Acid Sulfate Soil (<i>State and Local Acid Sulfate Soil Registers</i>)			500m
	Acid Sulfate Soil (<i>National Acid Sulfate Soil Registers</i>)	✓	✓	500m
1.5	Geology and Topography (<i>Geology</i>)	✓	✓	500m
	Geology and Topography (<i>Naturally Occurring Asbestos Potential NOA</i>)			500m
Section 2 - Hydrogeology and Geotechnical				
2.1	GDE & Hydrogeology Constraints (<i>Aquifer Type</i>)	✓	✓	2000m
	GDE & Hydrogeology Constraints (<i>Groundwater Protection Areas</i>)			2000m
	GDE & Hydrogeology Constraints (<i>Wetlands</i>)			2000m
	GDE & Hydrogeology Constraints (<i>GDE Surface</i>)			2000m
	GDE & Hydrogeology Constraints (<i>GDE Subsurface</i>)		✓	2000m
	GDE & Hydrogeology Constraints (<i>Groundwater Licences</i>)			2000m
	GDE & Hydrogeology Constraints (<i>Groundwater Bores</i>)		✓	2000m
2.2	Groundwater and Other Bores (<i>Groundwater Restricted Use Zones</i>)			2000m
	Groundwater and Other Bores (<i>Groundwater Salinity</i>)	✓	✓	2000m
	Groundwater and Other Bores (<i>Other Known Boreholes Investigations</i>)		✓	2000m
Section 3 - Environmental Registers, Licences and Incidents				
3.1	Contaminated Land Public Register (<i>Contaminated Sites</i>)			1000m
3.2	Licences, Approvals & Assessments (<i>Licences</i>)		✓	1000m
	Licences, Approvals & Assessments (<i>Audits</i>)			1000m
	Licences, Approvals & Assessments (<i>Clean up Notices, Penalty Notices and Orders</i>)			1000m
3.3a	Sites Regulated by other Jurisdictional Body (<i>Contaminated Legacy Areas</i>)			2000m
	Sites Regulated by other Jurisdictional Body (<i>Defence, Military Sites and UXO Areas</i>)		✓	2000m
	Sites Regulated by other Jurisdictional Body (<i>Former Gasworks Sites</i>)			2000m
	Sites Regulated by other Jurisdictional Body (<i>PFAS Sites</i>)			2000m
3.3b	Other Potential Hazard Sources (<i>Mines and Quarries</i>)			500m
	Other Potential Hazard Sources (<i>Landfills</i>)			500m
	Other Potential Hazard Sources (<i>National Pollutant Inventory NPI</i>)			500m
Section 4 - Potentially Contaminated Areas				
4.1	Potentially Contaminating Activities (<i>Liquid Fuel Facilities</i>)		✓	200m
4.2	Historical Business Directories		✓	200m
Section 5 - Natural Hazards				
5.1	Fire Hazard (<i>Bushfire Prone Areas</i>)	✓	✓	500m
	Fire Hazard (<i>Bushfire History</i>)			500m
5.2	Flood Hazard (<i>Flood Planning Area</i>)			500m
	Flood Hazard (<i>Other Flood Studies</i>)	✓	✓	500m
	Flood Hazard (<i>Flood History</i>)			500m
5.3	Erosion Hazard	✓	✓	500m

Index

INDEX	1
SECTION 1 - PROPERTY SETTING	3
1.1 Sensitive Receptors	3
1.2a Planning Controls	3
Zoning.....	3
1.2b Planning Overlays	4
Environmental Planning Instruments	4
Other Planning Information	5
1.3 Heritage	5
State and Local Heritage Registers.....	5
Australian Heritage Database Register.....	5
1.4a Soil and Land Use Information	6
Soil Landscape.....	6
Salinity.....	6
Radon	6
1.4b Acid Sulfate Soil	6
State and Local Acid Sulfate Soil Registers	6
National Acid Sulfate Soil Register	7
1.5 Geology and Topography	7
Geology.....	7
Naturally Occurring Asbestos Potential (NOA)	7
Topography	7
SECTION 2 - HYDROGEOLOGY AND GEOTECHNICAL	8
2.1 GDE & Hydrogeology Constraints	8
Aquifer Type.....	8
Groundwater Protection Areas	8
Wetlands.....	8
Groundwater Dependent Ecosystems (GDE) - Aquatic (Surface).....	8
Groundwater Dependent Ecosystems (GDE) - Terrestrial (Subsurface)	9
Groundwater Licences (Western Australia)	9
Groundwater Bores	9
Groundwater Bores Driller Lithology Details.....	9
2.2 Groundwater and other Bores	10
Groundwater Restricted Use Zones.....	10
Groundwater Salinity.....	10
Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes).....	10
SECTION 3 - ENVIRONMENTAL REGISTERS, LICENCES AND INCIDENTS	12
3.1 Contaminated Land Public Register	12
Contaminated Sites	12
3.2 Licences, Approvals & Assessments	13
Licences.....	13
Audits, PRSA	13
Clean Up, Penalty Notices and Orders.....	13
3.3a Sites Regulated by other Jurisdictional Body	14
Contaminated Legacy Areas	14
Defence, Military Sites and UXO Areas.....	14
Former Gasworks Sites	15
PFAS Sites.....	15
3.3b Other Potential Hazard Sources.....	15
Mines and Quarries (current and historical).....	15

Landfills (current and historical)	15
National Pollutant Inventory (NPI)	15

SECTION 4 - POTENTIALLY CONTAMINATED AREAS..... 16

4.1 Potentially Contaminating Activities	16
<i>Industries, businesses and activities that may cause contamination</i>	16
4.2 Historical Business Directories	18

SECTION 5 - NATURAL HAZARDS..... 20

5.1 Fire Hazard.....	20
<i>Bushfire Prone Areas</i>	20
<i>Bushfire History</i>	20
5.2 Flood Hazard.....	21
<i>Flood Planning Area</i>	21
<i>Other Flood Studies</i>	21
<i>Flood History</i>	21
5.3 Erosion Hazard	21
<i>Erosion Hazard</i>	21

PRODUCT GUIDE24

ATTACHMENTS

- Appendix A - Report Maps
- Appendix B - Historical Imagery



Section 1 Property Setting

1.1 Sensitive Receptors and Features of Interest

Map 1.1 (200m Buffer)

Sensitive receptor	Type	Distance (m)	Direction
Moore Gully	Watercourse	0.0	Onsite
Farm Dam Area	Farm Dam Area	29.5	West

Source: [Sensitive Receptors](#)

1.2a Planning Controls

Map 1.2a (500m Buffer)

Zoning

Zoning	Type	Details	Distance (m)	Direction
MU	Mixed Use	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	0.0	South
ENT	Enterprise	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	30.1	South
ENZ	Environment and Recreation	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	270.1	South
SP2	Infrastructure	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	441.9	South

Source: [Zoning, Planning Overlays and Other Planning Information](#)

1.2b Planning Overlays

Environmental Planning Instruments

Map 1.2b (500m Buffer)

Name	Type	Details	Distance (m)	Direction
Future Residential Growth Area	Coal Seam Gas Exclusions	State Environmental Planning Policy (Resources and Energy) 2021	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy (Biodiversity and Conservation) 2021	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy (Transport and Infrastructure) 2021	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy (Resources and Energy) 2021	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy (Resilience and Hazards) 2021	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy (Exempt and Complying Development Codes) 2008	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy (Industry and Employment) 2021	0.0	South
Hawkesbury Nepean Catchment	Hawkesbury Nepean Catchment	State Environmental Planning Policy (Biodiversity and Conservation) 2021	0.0	South
Hawkesbury-Nepean Sub-Catchments	Hawkesbury-Nepean Sub-Catchments	State Environmental Planning Policy (Biodiversity and Conservation) 2021	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy (Primary Production) 2021	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy (Planning Systems) 2021	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy (Housing) 2021	0.0	South
Subject Land	SEPP Land Application	State Environmental Planning Policy (Biodiversity and Conservation) 2021	0.0	South
Excluded	Allowable Clearing	State Environmental Planning Policy (Biodiversity and Conservation) 2021	0.0	South
Growth Centres	Growth Centres	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	0.0	South
Strategic Conservation Planning Area	SEPP Land Application	State Environmental Planning Policy (Biodiversity and Conservation) 2021	0.0	South
Land Application	SEPP Land Application	State Environmental Planning Policy (Sustainable Buildings) 2022	0.0	South
6km Lighting Intensity Radius	Lighting Intensity	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	0.0	South
Rail Network	Infrastructure	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	0.0	South
40%	Minimum Water Use Standard (%)	State Environmental Planning Policy (Sustainable Buildings) 2022	0.0	South
Greater Sydney	Greater Sydney	State Environmental Planning Policy (Transport and Infrastructure) 2021	0.0	South

Name	Type	Details	Distance (m)	Direction
INNER HORIZONTAL SURFACE RL 125.5m AHD	Obstacle Limitation Surface	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	0.0	South
Future Residential Growth Area	Future Residential Growth Area	State Environmental Planning Policy (Resources and Energy) 2021	0.0	South
Road Network	Infrastructure	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	0.0	South
South West Growth Centre Precinct Boundary	Growth Centre Boundaries	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	0.0	South
Precinct Boundaries	Precinct Boundary	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	0.0	South
Local Open Space and Drainage	Land Reservation Acquisition	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	2.0	South
Stormwater Infrastructure	Land Reservation Acquisition	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	74.6	South
Future Infrastructure Corridor	SEPP Land Application	State Environmental Planning Policy (Transport and Infrastructure) 2021	197.6	South
SP2 Infrastructure	Future Infrastructure Corridor	State Environmental Planning Policy (Transport and Infrastructure) 2021	222.6	South
High Biodiversity Value Area (Existing Native Vegetation)	High Biodiversity Value Area (Existing Native Vegetation)	State Environmental Planning Policy (Precincts—Western Parkland City) 2021	268.6	South

Other Planning Information

Name	Type	Details	Distance (m)	Direction
Not identified	-	-	-	-

Including Mining Subsidence Areas.

Source: [Zoning, Planning Overlays and Other Planning Information](#)

1.3 Heritage

Map 1.3 (200m Buffer)

State and Local Heritage Registers

Site ID	Site Name	Type	Details	Distance (m)	Direction
Not identified	-	-	-	-	-

Source: [State and Local Heritage Registers](#)

Australian Heritage Database Register

Site ID	Site Name	Type	Details	Distance (m)	Direction
Not identified	-	-	-	-	-

Source: [Commonwealth Heritage List, National Heritage List and World Heritage Area](#)

1.4a Soil and Land Use Information

Map 1.4a (500m Buffer)

Soil Landscape

Code	Name	Soil Group	Description	Distance (m)	Direction
REbt	Blacktown	Residual	Landscape—gently undulating rises on Wianamatta Group shales. Local relief to 30 m, slopes usually >5%. Broad rounded crests and ridges with gently inclined slopes. Cleared Eucalypt woodland and tall open-forest (dry sclerophyll forest). Soils—shallow to moderately deep (>100 cm) hardsetting mottled texture contrast soils, red and brown podzolic soils (Dr3.21, Dr3.31, Db2.11, Db2.21) on crests grading to yellow podzolic soils (Dy2.11, Dy3.11) on lower slopes and in drainage lines. Limitations—localised seasonal waterlogging, localised water erosion hazard, moderately reactive highly plastic subsoil, localised surface movement potential.	0.0	Onsite
ALsc	South Creek	Alluvial	Landscape—floodplains, valley flats and drainage depressions of the channels on the Cumberland Plain. Usually flat with incised channels; mainly cleared. Soils—often very deep layered sediments over bedrock or relict soils. Where pedogenesis has occurred structured plastic clays (Uf6.13) or structured loams (Um6.1) in and immediately adjacent to drainage lines; red and yellow podzolic soils (Dr5.11, Dy2.41, Dr2.21) are most common terraces with small areas of structured grey clays (Gn4.54), leached clay (Uf4.42) and yellow solodic soils (Dy4.42, Dy5.23). Limitations—flood hazard, seasonal waterlogging, localised permanently high watertables, localised water erosion hazard, localised surface movement potential.	402.2	South-east

Source: [Soil Landscape](#)

Salinity

Salinity Hazard	Type	Details	Distance (m)	Direction
Very High	Hydrogeological Landscapes	Western Sydney Hydrogeological Landscapes	0.0	Onsite
High hazard or risk	Australian Dryland Salinity Assessment (1:2,500,000) 2001	High hazard or risk in 2000, 2020, and 2050	0.0	Onsite

Source: [Soil Salinity](#)

Radon

Radon Level (Bq/m ³)	Distance (m)	Direction
7	0.0	Onsite

Typical radon levels in Australia are low and the values shown are the average values for each census district. For specific location, factors such as the local geology and house type could lead to different values. (ARPANSA).

1.4b Acid Sulfate Soil

Map 1.4b (500m Buffer)

State and Local Acid Sulfate Soil Registers

Name	Classification	Description	Distance (m)	Direction
Not identified	-	-	-	-

To ensure that development does not disturb, expose, or drain acid sulfate soils and cause environmental damage, development consent may be required for conducting works within areas and land shown on the Acid Sulfate Soils Map.

Source: [National, State and Local Acid Sulfate Soils Registers](#)

National Acid Sulfate Soil Register

Name	Classification	Description	Distance (m)	Direction
Atlas of Australian Acid Sulfate Soils	Extremely low probability of occurrence	Acid sulfate soil generally within upper 1m in wet / riparian areas.	0.0	Onsite

Acid Sulfate Soils (ASS) are all those soils in which sulfuric acid may be produced, is being produced, or has been produced in amounts that have a lasting effect on main soil characteristics.

Source: [National, State and Local Acid Sulfate Soils Registers](#)

1.5 Geology and Topography

Map 1.5 (500m Buffer)

Geology

Map Sheet	Code	Formation	Age	Group	Dominant Lithology	Description	Distance (m)	Direction
Penrith 1:100,000 Geological Sheet	Twib	Bringelly Shale	Middle Triassic (base) to Middle Triassic (top)	Wianamatta Group	Shale	Shale, carbonaceous claystone, laminite, lithic sandstone, rare coal.	0.0	Onsite

Source: [Geology](#)

Naturally Occurring Asbestos Potential (NOA)

Category	On the Property?	Within Buffer?
Not identified	-	-

Source: [Naturally Occurring Asbestos NOA](#)

Topography

Topography (Onsite)	76 - 80 mAHD
---------------------	--------------

Source: [National, State and Local Acid Sulfate Soils Registers](#)



Section 2 Hydrogeology and Geotechnical



2.1 GDE & Hydrogeology Constraints

Map 1.5 (500m Buffer)

Aquifer Type

Type	Distance (m)	Direction
Porous, extensive aquifers of low to moderate productivity	0.0	Onsite

Source: [Groundwater Aquifers](#)

Groundwater Protection Areas

Name	Water Plan Area	Distance (m)	Direction
Not identified	-	-	-

Source: [Groundwater Protection Areas and Groundwater Restricted Use Zones](#)

Wetlands

Name	Description	Distance (m)	Direction
Not identified	-	-	-

Source: [Wetlands](#)

Groundwater Dependent Ecosystems (GDE) - Aquatic (Surface)

Potential	Distance (m)	Direction
Not identified	-	-

Aquatic - Ecosystems that rely on the Surface expression of groundwater.

Source: [Groundwater Dependent Ecosystems](#)

Groundwater Dependent Ecosystems (GDE) - Terrestrial (Subsurface)

Potential	Distance (m)	Direction
High potential GDE - from national assessment	194.0	West
Moderate potential GDE - from national assessment	231.5	North
Low potential GDE - from national assessment	672.9	South

Terrestrial - Ecosystems that rely on the Subsurface expression of groundwater.

Source: [Groundwater Dependent Ecosystems](#)

Groundwater Licences (Western Australia)

Map ID	WRI number	Allocation (KL)	Address	All Parties	Distance (m)	Direction
Not identified	-	-	-	-	-	-

Source: [Groundwater Protection Areas and Groundwater Restricted Use Zones](#)

Groundwater Bores

Map ID	Groundwater Bore ID	Authorised Purpose	Completion Date	Drilled Depth (m)	Final Depth (m)	SWL (m)	Salinity/TDS (mg/l)	Yield (L/s)	Distance (m)	Direction
5	GW113438	Monitoring	13/12/2010	12.2	12.2	Null	Null	Null	397.2	East
7	GW113440	Monitoring	14/12/2010	12.1	12.1	Null	Null	Null	476.8	South-east
6	GW113439	Monitoring	13/12/2010	12.2	12.2	Null	Null	Null	492.9	East
8	GW113441	Monitoring	15/12/2010	12.2	12.2	Null	Null	Null	651.3	North-east
9	GW113442	Monitoring	15/12/2010	6.0	6.0	Null	Null	Null	833.3	East
3	GW063062	Household	01/01/1989	Null	151.0	Null	Null	Null	927.4	South-west
4	GW073533	Household	01/01/1990	Null	330.0	Null	Null	Null	1006.8	South-west
1	GW101062	Household	09/09/1997	220.0	220.0	45.0	8768 mg/L	1.8	1080.0	South
2	GW111604	Monitoring	25/08/2011	20.0	20.0	Null	Null	Null	1198.0	South
10	GW112382	Domestic	01/01/2024	7.0	7.0	4.5	Null	Null	1863.0	South-west

Note: The use of the symbol "-" or "Null" indicates that no records were found.

SWL: Standing Water Level (the latest record is displayed). RWL: Rest Water Level (the latest record is displayed). TSS: Total Soluble Salts.

Source: [Groundwater Bores & Lithology](#)

Groundwater Bores Driller Lithology Details

Groundwater Bore ID	From Depth - To Depth (m)	Lithology	Distance (m)	Direction
GW113438	Null		397.2	East
GW113440	Null		476.8	South-east
GW113439	Null		492.9	East
GW113441	Null		651.3	North-east
GW113442	Null		833.3	East
GW063062	Null		927.4	South-west
GW073533	Null		1006.8	South-west
GW101062	0m-2m Clay 2m-4m Brown shale 4m-51m Black shale. water bearing 24m tds-8768/1.0l/s		1080.0	South

Groundwater Bore ID	From Depth – To Depth (m)	Lithology	Distance (m)	Direction
	51m-53m Dark grey sandstone. very fine grain 53m-55m Black shale 55m-67m Dark grey sandstone. very fine grain 67m-110m Black shale 110m-170m White quartz. sandstone m to c grain bit of quartz 170m-190m White quartz. sandstone m to c grain. lot of quartz. at 180 1.2 tds 7507/at 186-1.4 tds -6720 190m-199m Siltstone 199m-220m White quartz. sandstone.med.grain. bit of quartz 220m-220m At 204-1.6 tds-5888 at 220 -1.8 l/s tds = 5568			
GW111604	0m-0.6m Topsoil 0.6m-3.05m Silty clay 3.05m-4m Silty clay,pale grey 4m-5.8m Silty clay,brown mottled 5.8m-8m Shale grey,thin siltstone 8m-9.5m Shale dark grey 9.5m-12.9m Shale dark grey,fine grained sandstone 12.9m-17.1m Shale grey,dark grey 17.1m-20m Sandstone.grey,shale fine grained		1198.0	South
GW112382	Null		1863.0	South-west

Note: The use of the symbol "-" or "Null" indicates that no records were found.

Source: [Groundwater Bores & Lithology](#)

2.2 Groundwater and other Bores

Map 2.2 (2000m Buffer)

Groundwater Restricted Use Zones

Name / Number	Address	Site History	Description	Distance (m)	Direction
Not identified	-	-	-	-	-

Source: [Groundwater Protection Areas and Groundwater Restricted Use Zones](#)

Groundwater Salinity

Class	Salinity Value	Source	Distance (m)	Direction
Saline (>3000mg/L)	> 3000	Office of Water, New South Wales	0.0	Onsite

Source: [Groundwater Salinity](#)

Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes)

Borehole ID	Purpose	Project	Client/ License	Date Drilled	Depth (m)	Distance (m)	Direction
T_PC02	Intrusive Investigation	The Northern Road Upgrade Stage 4: Proposed Upgrade from Mersey Rd, Bringelly and Littlefields Road, Luddenham	RMS	01/09/2016	1.2	1818.6	West
T_PC01	Intrusive Investigation	The Northern Road Upgrade Stage 4: Proposed Upgrade from Mersey Rd, Bringelly and Littlefields Road, Luddenham	RMS	01/09/2016	1.2	1819.0	West
G4098_BH1	Borehole	Bringelly Road Upgrade: Investigation for Concept Design	RMS	14/01/2010	5.1	1827.5	South
TC6E	Intrusive Investigation	Bringelly Road Stage 2	RMS	03/11/2014	0.0	1912.0	South
TP11	Test Pit	Bringelly Road Stage 2	RMS	03/11/2014	0.5	1912.3	South

Borehole ID	Purpose	Project	Client/ License	Date Drilled	Depth (m)	Distance (m)	Direction
TP12	Test Pit	Bringelly Road Stage 2	RMS	03/11/2014	1.1	1934.7	South
TP12	Borehole	Bringelly Road Stage 2	RMS	03/11/2014	1.1	1934.7	South
G4098_BH2	Borehole	Bringelly Road Upgrade: Investigation for Concept Design	RMS	14/01/2010	5.1	1958.9	South
T_PC03	Intrusive Investigation	The Northern Road Upgrade Stage 4: Proposed Upgrade from Mersey Rd, Bringelly and Littlefields Road, Luddenham	RMS	01/09/2016	1.5	1985.6	West

Note: The use of the symbol "-" or "Null" indicates that no records were found.

Source: [Other Known Borehole Investigations \(Coal Seam Gas \(CSG\), Petroleum Wells and Other Boreholes\)](#)



Section 3 Environmental Registers, Licences and Incidents



3.1 Contaminated Land Public Register

Map 3.1 (1000m Buffer)

Contaminated Sites

Register Type	Site Name	Address	Description	Details	Distance (m)	Direction
Not identified	-	-	-	-	-	-

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Source: [Contaminated Land Public Register](#)

Table 3.1.1 Contaminated Land Public Register		
State	Regulatory Body	Information included in this search (by state)
ACT	EPA (Environment Protection Authority)	Contaminated Land Search Register of Contaminated Sites* (on request)
NSW	EPA (Environment Protection Authority)	Sites Notified as Contaminated Records of Notices
NT	EPA (Environment Protection Authority)	Contaminated Land Audit Pollution Abatement Notice
QLD	DES (Department of Environment and Science)	Contaminated Land Search (Environmental Management and Contaminated Land Registers)* (per lot)
SA	EPA (Environment Protection Authority)	Site Contamination Index Assessment Areas
TAS	EPA (Environment Protection Authority)	Regulated Sites and Premises Lutana and Parts of Hobarts Eastern Shore
VIC	EPA (Environment Protection Authority)	Priority Sites Register Pollution Abatement Notice
WA	DWER (Department of Water and Environmental Regulation)	Contaminated Sites Database

This search contains information retrieved from the relevant state authority, agency/department, or government authority that notifies and identifies contaminated land. The list only contains contaminated sites that the regulatory body is aware of or that have been notified by owners or occupiers as contaminated land. The sites are recorded on the register at various stages of the assessment and/or remediation process. If a site is not on the list, it does not necessarily mean the site is not contaminated.

3.2 Licences, Approvals & Assessments

Map 3.2 (1000m Buffer)

Licences

Licence No	Type	Licence holder	Location Name	Premise Address	Activity	Dist. (m)*	Direct
21672	Surrendered	CPB CONTRACTORS PTY LIMITED	CPB CONTRACTORS PTY LIMITED	ST MARYS TO ORCHARD HILLS AND BRINGELLY TO AEROTROPOLIS, ST MARYS, NSW 2760	Railway infrastructure construction (>=50,000T & track to be constructed <=10km)	Not mapped	Not mapped
21695	Issued	CPB CONTRACTORS PTY LIMITED	CPB CONTRACTORS PTY LIMITED	NA, LUDDENHAM, NSW 2745	Railway infrastructure construction (>=50,000T & track to be constructed <=10km)	Not mapped	Not mapped
21807	Issued	WEBUILD S.P.A.	WEBUILD S.P.A.	SYDNEY METRO WESTERN SYDNEY AIRPORT-STATIONS, SYSTEMS, TRAINS, OPERATION & MAINTENANCE PACKAGE, ST MARYS, NSW 2760	Railway infrastructure construction (>=50,000T & track to be constructed >10km & <30km)	Not mapped	Not mapped

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

*Results that appear as "not mapped" refer to licences that are applied to larger areas and/or without specific definition, such as waterways, forests etc. These are still identified in the search results but will not be shown within the map.

Source: [Licences, Approvals & Assessments](#)

Audits, PRSA

No	Type	Licence holder	Location Name	Premise Address	Activity	Dist. (m)*	Direction
Not identified	-	-	-	-	-	-	-

*If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Source: [Licences, Approvals & Assessments](#)

Clean Up, Penalty Notices and Orders

No	Type	Licence holder	Location Name	Premise Address	Details	Dist. (m)*	Direction
Not identified	-	-	-	-	-	-	-

*If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Source: [Licences, Approvals & Assessments](#)

Table 3.2.1 Licences, Approvals & Assessments		
State	Regulatory Body	Information included in this search (by state)
ACT	EPA (Environment Protection Authority)	Environment Protection Authorisation Search Environment Protection Agreement Search
NSW	EPA (Environment Protection Authority)	POEO Public Register (Environment Protection licences, Applications, Notices, Audits or Pollution studies and Reduction Programs)
NT	EPA (Environment Protection Authority)	Environment Protection Licences and Approvals
QLD	DES (Department of Environment and Science)	Environmental Authorities
SA	EPA (Environment Protection Authority)	Licences or Authorisations (Licences, Exemptions and Works Approvals) Environment Protection Orders (EPO) and Clean Up Orders (CUO)
TAS	EPA (Environment Protection Authority)	Regulated Sites and Premises
VIC	EPA (Environment Protection Authority)	Permissions Register (Operating Licence, Permit and Registration) Audit Reports
WA	DWER (Department of Water and Environmental Regulation)	Licences and Works Approvals

3.3a Sites Regulated by other Jurisdictional Body

Contaminated Legacy Areas

Site Name	Description	Distance (m)	Direction
Not identified	-	-	-

Includes known contaminated areas such as James Hardies Asbestos waste legacy areas, Pasmenco Smelter and Uranium processing site.

Source: [Contaminated Legacy Areas](#)

Defence, Military Sites and UXO Areas

Site name	Type*	Details	Distance (m)	Direction
Former OTC Site Group - Bringelly Radio Receiving Station	Defence Area / Military Sites	The Bringelly Radio Receiving Station, part of the Overseas Telecommunications Commission (OTC) network, officially commenced operations on 10 October 1955. It served as Australia's primary receiving centre for overseas radio telegrams and telephone calls. The station remained operational until its decommissioning around 2002. This closure was influenced by the increasing automation of telecommunications, the shift of RAAF transmissions to other regions, and the growth of residential developments in Bringelly, which made high-frequency transmissions less feasible (Sydney Metro Western Sydney Airport Report - Bringelly RAAF Base Compound)	559.3	South

*RCIP (Regional Contamination Investigation Program). UXO (Unexploded Ordnance Areas).

Source: [Defence, Military Sites, and UXO Areas](#)

Former Gasworks Sites

Site name	Description	Distance (m)	Direction
Not identified	-	-	-

Source: [Former Gasworks Sites](#)

PFAS Sites

Site name	Type	Details	Distance (m)	Direction
Not identified	-	-	-	-

Source: [PFAS Sites](#)

3.3b Other Potential Hazard Sources

Map 3.3b (500m Buffer)

Mines and Quarries (current and historical)

Site name	Description	Status	Distance (m)	Direction
Not identified	-	-	-	-

Source: [Mines and Quarries](#)

Landfills (current and historical)

Site name	Description	Status	Distance (m)	Direction
Not identified	-	-	-	-

National Pollutant Inventory (NPI)

Facility name	Address	Primary ANZSIC Class	Latest report	Distance (m)	Direction
Not identified	-	-	-	-	-

Source: [Contaminated Legacy Areas](#)



Section 4 Potentially Contaminated Areas



4.1 Potentially Contaminating Activities

Map 4.1 (200m Buffer)

Industries, businesses and activities that may cause contamination

Map ID	Site name	Category	Description	Address	Status*	Dist. (m)	Direction
1	Advanced Manufacturing Readiness Facility	Manufacturing and Industrial Facilities	Manufacturing facility Hub	215 Badgerys Creek Rd, Bradfield NSW 2556	Current	0.4	South
2	SSTOM - Bradfield (AEC)	Manufacturing and Industrial Facilities	Construction company	215 Badgerys Creek Rd, Bradfield NSW 2556	Current	0.4	South
3	Crane Force	Depots and Storage Yards	Crane Hire Company	100 Badgerys Creek Rd, Bringelly NSW 2556	Current	20.6	South

*Status: Information is current as when this report was created.

The operational status of the business is determined using the available data sources and does not indicate real-time conditions at the site.

Current: business is operating on the day this report was issued.

Former: business that have been closed or discontinued within 2 years from the date of this report.

Source: [Potentially Contaminated Areas, Activities \(PCA\)](#)

Categories included in this search. (Notifiable activities)

Abattoirs	Explosives and Dangerous Goods	Paint Industries
Abrasive Blasting	Extractive Industries	Petrol Stations
Agriculture / Horticulture	Fire and Rescue	Pharmaceuticals
Airports	Food Manufacturing	Port and Marina Operations
Asbestos	Foundry, Smelting or Refining	Power Plants
Asphalt or Bitumen	Fuel Terminals & Depots	Printing and Photography
Batteries	Glass, Ceramics and Plastic	Rail Industry and Associated Activities
Breweries / Distilleries	Gun, Pistol or Rifle Ranges	Rubber and Tyre
Cement, Concrete or Lime	Hospitals and Research Facilities	Storage Tanks
Cemeteries	Landfill Sites	Substations and Switching Stations
Chemicals	Livestock Dips	Textiles and Tannery

Categories included in this search. (Notifiable activities)		
Coal Yards	Mechanical and Automotive	Timber, Pulp and Paper Works
Depots and Storage Yards	Metal Fabrication and Treatments	Waste and Recycling Facilities
Dry Cleaners	Oil and Gas	Wastewater Treatment Facilities
Electrical or Electrical Components	Other Infrastructure Facilities	-

Industries, businesses, and activities identified as having an increased likelihood of causing contamination.

The industries and business activities listed above have been identified as having an increased likelihood of causing contamination and have been identified through published state and national guidelines and regulations. These industries are noted due to their potential to store or use substances that could cause contamination to the surrounding environment if not managed appropriately. The identification of these activities does not imply the presence of contamination at the site.

The records identified are based on the reported business activity and have not been assessed based on any current or previous site inspection. Please note that records not identified within this section (due to error or unforeseen omission) does not necessarily mean that the screened area is not potentially contaminated or free of any risks.

4.2 Historical Business Directories

(not mapped)

YEAR	Activity	Name	Address	Positional accuracy	Distance (m)	Direction
1965	Contractors	Bell J F	1176 Bringelly Rd, NSW	Address	123.9	North
1990	Concrete Contractor	Smith R J Plant Hire Pty Ltd	90 Badgerrys Creek Road, Bringelly, NSW	Address	173.0	West
2005	Vending Equipment & Services	A.V.A. Services	90 Badgery's Creek Rd, HOXTON PARK, NSW, 2171	Address	173.0	West
1965	Drainers	BROWN EDWARD & SON	Bringelly Rd, NSW	Street		North
1965	Builders & Contractors	Metcalfe A B	Bringelly Rd, NSW	Street		North
1965	Carriers—Light	Wiskich D M	Bringelly Rd, NSW	Street		North
1965	Contractors	Brown Edward&Son	Bringelly Rd, NSW	Street		North
1965	Poultry Farmers & Dealers	Maranik R	Bringelly Rd, NSW	Street		North
1965	Graziers & Cattle Breeders	Rossmore Stud Pty Lt	Bringelly Rd, NSW	Street		North
1965	Market Gardeners	Bartos J&A	Bringelly Rd, NSW	Street		North
1965	Market Gardeners	Sutich G	Bringelly Rd, NSW	Street		North
1965	Poultry Farmers & Dealers	Baker A W	Bringelly Rd, NSW	Street		North
1965	Poultry Farmers & Dealers	Effield W H&Sons	Bringelly Rd, NSW	Street		North
1965	Poultry Farmers & Dealers	Langfield V C	Bringelly Rd, NSW	Street		North
1980	Farmers	Simko M	Bringelly Rd, NSW	Street		North
1980	Oil - Fuel & Heating	Hughes Petroleum Pty Ltd	Corner Bringelly & Little Roads, Mulgoa, NSW	Street		North
1990	Farmers	Simko M	Bringelly Rd, NSW	Street		North

Land Insight uses a number of address geocoding techniques and has characterised them based on completeness (match rates) and positional accuracy. When a historical street address is incomplete or a match is not found, a record identified as being in the surrounding area will be included for reference and the accuracy of the data is approximate only. An explanation of the positional accuracy records is defined in the table below.

Source: [Historical Business Directories](#)

Historical data positional accuracy and georeferencing results explanation		
Positional accuracy	Georeferenced	Description
Address	Located to the address level	<i>When street address and names fully match.</i>
Street	Located to the street centroid	<i>When street names match but no exact address was found. Location is approximate.</i>
Place	Located to the structure, building or complex	<i>When building, residential complex or structure name match but no exact address was found. Location is approximate.</i>
Suburb	Located to the suburb area	<i>When suburb name match but no exact address was found. Location is approximate.</i>

The data used in this section was extracted from range of historical commercial trade directories and business listings. The business addresses were geocoded using historical information and the accuracy of the data may vary due to

changes to the physical address at a given locality over time or the quality of the original records. From 2005, the historical business records in this section are considered more accurate as information was extracted from digital directories with geographic coordinate location information available. On this basis, reliance on the historic listing data should be considered when assessing the risk of contamination from an activity at the site. The presence of a business listing does not definitively confirm the actual activity that has occurred at the site. For more information on how these records were geocoded and the methodology used by Land Insight, contact us at info@landinsight.co.

Historical business directory listings have been filtered to match activities and industries identified as PCAs in Section 4.1. Please note that any record not identified within this section (due to error or unforeseen omission) does not necessarily mean that the screened area is not potentially contaminated or free of any risks.



Section 5 Natural Hazards



5.1 Fire Hazard

Map 5.1 (500m Buffer)

Bushfire Prone Areas

Category	Type	Details	Distance (m)	Direction
Bushfire Prone Area	Vegetation Category 3	This vegetation category indicates medium bushfire risk vegetation (higher than category 2, and the excluded areas, but lower than Category 1). Vegetation category consists of grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands.	0.0	Onsite
Bushfire Prone Area	Vegetation Buffer	Bushfire prone vegetation buffers are created based on vegetation categories, with buffering distance being 100 metres for vegetation category 1 and 30 metres for vegetation category 2 and 3.	0.4	West
Bushfire Prone Area	Vegetation Category 1	This vegetation category indicates the highest risk for bush fire. It consists of areas of forest, woodlands, heaths (tall and short), forested wetlands and timber plantations.	184.6	West

Source: [Fire Hazards](#)

Bushfire History

Type	Season	Details	Distance (m)	Direction
Not identified	-	-	-	-

Source: [Fire Hazards](#)

5.2 Flood Hazard

Flood Planning Area

Map 5.2 (500m Buffer)

Type	Name	Details	Distance (m)	Direction
Not identified	-	-	-	-

Source: [Flood Hazard](#)

Other Flood Studies

Type	Name	Details	Distance (m)	Direction
Probable Maximum Flood (PMF)	Sydney Metro - Western Sydney Airport Technical Paper 6: Flooding, hydrology and water quality - April 2022	The largest flood that could conceivably be expected to occur at a particular location, usually estimated from probable maximum precipitation. The PMF defines the maximum extent of flood prone land, that is, the floodplain. It is difficult to define a meaningful Annual Exceedance Probability for the PMF, but it is commonly assumed to be of the order of 104 to 107 (once in 10,000 to 10,000,000 years).	0.0	Onsite
1% AEP Flood Extent	Sydney Metro - Western Sydney Airport Technical Paper 6: Flooding, hydrology and water quality - April 2022	The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance. A flood of this size or larger has a 1 in 100 chance or a 1% probability of occurring in any year.	0.0	Onsite

Source: [Flood Hazard](#)

Flood History

Type	Season	Details	Distance (m)	Direction
Not identified	-	-	-	-

The list provided is not comprehensive and does not consider all flood history. It only includes the information that is currently available.

Source: [Flood Hazard](#)

5.3 Erosion Hazard

Map 5.3 (500m Buffer)

Erosion Hazard

Category	Type	Details	Distance (m)	Direction
Landslip Erosion Risk	Very slight to negligible limitations	Very Low	0.0	Onsite
Water Erosion Risk	Moderate to severe limitations	Moderate	0.0	Onsite
	Severe limitations	High	145.2	South

Category	Type	Details	Distance (m)	Direction
Wind Erosion Risk	Very slight to negligible limitations	Very Low	0.0	Onsite

Source: [Erosion Hazard](#)



The Commons
388 George Street
Sydney NSW 2000 Australia
info@landinsight.co
www.landinsight.co

An aerial photograph of a rocky coastline. The rocks are primarily green and yellow, with some blue patches. The water is a deep blue. The rocks are jagged and irregular in shape. The water is clear, showing the texture of the rocks beneath. The overall scene is a natural, rugged landscape.

Product Guide

Due Diligence Insight Report

15 Apr 2025

Data Sources

NLUA - The Land Insight National Land Use Atlas (NLUA)

Land Insights' NLUA is a unique, proprietary database, meticulously curated from over a decade's worth of research and hundreds of thousands of diverse information sources. NLUA provides a comprehensive overview of land usage and potential hazards, drawing from a wide array of reliable sources. These include verified Council Records, Historic Zoning Maps, Topographic and Parish Maps, and technically published reports.

NLUA integrates thoroughly researched information extracted from published reports, publications, and technical studies. It also incorporates Land Insight's proprietary machine learning process, which identifies land anomalies, patterns, and changes through aerial imagery interpretations.

Leveraging advanced technologies, NLUA verifies the provenance, authenticity, and precision of its data. This database undergoes rigorous validation procedures carried out by scientists, quality assurance teams, and technical experts. This ensures its accuracy and reliability before publication. For more information on methodologies and further inquiries, please contact the Land Insight teams at support@landinsight.co.

Section 1 - Property Setting

Sensitive Receptors

National – Google. Nearmap. @ Land Insight National Land Use Atlas (NLUA). Points of Interest - @ OpenStreetMap. Australian Business Datalist, Australian Schools Database - @ Australian Business Datalist ABDL (with permission). Cadastre. National - The digital cadastral boundaries and their legal identifiers have been derived from the relevant bodies from each Australian State and Territory jurisdiction combined by Land Insight & Resources.

Topographic data and Contours. National - The digital contours data and elevation information have been derived from the relevant bodies from each Australian State and Territory jurisdiction combined by Land Insight & Resources. National - Catchments, Streams, Aquifers, Storages, Wetlands and Man-made Structures that make up the hydrological system - @ Geoscience Australia. Parks and National and State Forest Data @ Department of Agriculture, Fisheries and Forestry.

Planning Controls and Overlays

Zoning, Planning Overlays and Other Planning Information

The digital planning information have been derived from the relevant bodies from each Australian State and Territory jurisdiction combined by Land Insight & Resources.

Mine subsidence districts - @ DFSI Subsidence Advisory NSW. ACT - ACT Territory Plan and Land Use Zones and overlays @ ACT Government Environment, Planning and Sustainable Development Directorate – Environment. NSW – NSW Environmental Planning Instruments, Land Use Zoning, Local Environmental Plan - @ State Government of NSW and NSW Department of Planning, Housing, and Infrastructure. NT - NT Planning Scheme, Land Use Zones @ NT Government Department of Infrastructure, Planning and Logistics. QLD - Land use mapping series, Land Use in QLD @ QLD Environment, Science, and Innovation. QLD zoning information, various LGA Councils. SA - Land Development Zones, Planning and Design Code Zones and Overlays – @ SA Government Department for Trade and Investment. TAS - Tasmania Planning Scheme, Zoning and Overlays, theLIST @State of Tasmania. @ Department of Natural Resources and Environment Tasmania. VIC - Tasmania Planning Scheme, Zoning and Overlays, theLIST @State of Tasmania. @ Department of Natural Resources and Environment Tasmania. WA - Local Planning Scheme and Region Scheme, Zones, and Reserves, @ WA Government Department of Planning, Lands and Heritage.

Heritage

Commonwealth Heritage List, National Heritage List and World Heritage Area

AUS - World, Commonwealth, and National Heritage Areas – World Heritage List, UNESCO. Australia's World Heritage List, @ Australian Government Department of Sustainability, Environment, Water, Population and Communities. @ Department of Climate Change, Energy, the Environment and Water.

State and Local Heritage Registers

ACT - ACT Heritage Sites @ ACT Government Environment, Planning and Sustainable Development Directorate – Environment. NSW - NSW EPI Heritage, NSW Heritage State Curtilage @ NSW Department of Premier and Cabinet, Heritage Council of NSW. NT - Heritage Register in NT, NT Town Planning Zones Heritage - @ NT Government of Australia through Department of Tourism, Sport, and Culture. QLD - Queensland Heritage register boundaries, Queensland Local Heritage. @ QLD Government Department of Environment and Science. Data from various local councils compiled by Land Insight Research Team (LIRT). SA - SA Heritage Places, SA Conservation State Heritage Areas, SA Conservation State Heritage Areas, Aboriginal Heritage in SA @ Governemtn of South Australia @ SA Government Department for Trade and Investment, Department for Environment and Water. TAS - Heritage Tasmania Features theLIST @State of Tasmania. VIC - VIC Heritage Inventory, VIC Sensitivity Public, VIC Heritage Register @ VIC Government Department of Energy, Environment and Climate Action; Department of Premier and Cabinet. WA - WA Heritage Areas, WA Heritage Council Local Heritage Survey, WA Heritage Council State Heritage Survey, WA Aboriginal Heritage Places @ WA Government Department of Planning, Lands and Heritage.

Soil and Land Use Information

Soil landscape

Soil Mapping, Information & Landscape - Digital Atlas of Australian Soils, Bureau of Rural Sciences (BRS); Commonwealth Scientific and Industrial Research Organisation (CSIRO) Australian Soil Resource Information System (ASRIS). CSIRO (2024): Australian Soil Resource Information System Website. v1. CSIRO. Data Collection. <https://doi.org/10.25919/pdct-9a97>

Australian Soil Resource Information System - Australian Soil Classification @ Geoscience Australia, ASRIS Australian Soil Classification @ CSIRO Soil and Landscape Information of Australia @ CSIRO. Australian national map layers, Atlas of Australian Soils - @ ABARES Australian Bureau of Agricultural and Resource Economics and Sciences.

ACT Soil Landscapes, Soil Landscapes of the Canberra 1:100,000 @ Australian Capital Territory Government, @ State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water. NSW Great Soil Group (GSG) Soil Type, Australian Soil Classification (ASC) soil type, Strategic Regional Land Use and Soil Profiles, 1:100 000 Soil Landscape Series, 1:250 000 Soil Landscape Series @ State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water. NT Northern Territory Land Systems compilation 1:1 000 000, 1:250 000 @ Environment, Parks, and Water Security. QLD Land systems series, Soil Series and Soil and land resource information @ The State of Queensland. SA Land Systems & Soil Types, Soils of South Australia @ Department for Environment and Water. TAS Soil Maps of Tasmania 1:100 000 various regions. Dominant Soil Order TAS @ Department of Natural Resources and Environment Tasmania. VIC Victorian Soil type mapping, VIC Land units (various regions), Victorian Land Use Information System, Land Systems of Victoria at 1:100 000 and 1:250 000 @ Department of Energy, Environment and Climate Action. WA Soil Landscape Mapping - Best Available, Soil Landscape Mapping - Systems, WA Soil Group @ Department of Primary Industries and Regional Development.

Soil salinity

ACT - Hydrogeological Landscapes, Soil Landscapes of the Australian Capital Territory @ actmapi ACT gov. NSW - Hydrogeological landscapes mapping, Sydney Metropolitan Western Study Area Hydrogeological Landscapes; New South Wales - Dryland Salinity Assessment 2000 - Assessment of Dryland salinity extent 2020 - @ State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water; Australian Bureau of Agricultural and Resource Economics and Sciences. NT - Land Suitability Guidelines @ Department of Infrastructure, Planning and Logistics NT. QLD - Salinity in Queensland @ Environment, land, and water QLD. SA - Land salinity, Dryland salinity, Watertable and non-watertable @ Department for Environment and water SA. TAS - Vulnerable Soils: Salinity Hazard @ thelist Land Tasmania. VIC - Victorian Dryland Salinity Assessment 2000 - Australian Bureau of Agricultural and Resource Economics and Sciences. WA - Dryland salinity in Western Australia - @ Department of Primary Industries and Regional Development's Agriculture and Food.

Acid Sulfate Soils

National, State and Local Acid Sulfate Soils Registers

AUS - Acid sulfate Soils - Atlas of Australian Acid Sulphate Soils @ CSIRO (2024): Australian Soil Resource Information System Website. v1. CSIRO. ACT - Environmental Planning Instrument (Acid Sulfate Soils) - @ State Government of NSW and NSW Department of Planning, Housing, and Infrastructure. NSW - Environmental Planning Instrument (Acid Sulfate Soils); Land and Soil Capability Mapping for NSW - @ State Government of NSW and NSW Department of Planning, Housing, and Infrastructure; @ State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water. NT - Acid Sulfate Soils of the Darwin Region; Northern Territory Land Systems (compilation of north_250 and south_1M) - @ Northern Territory Government of Australia Environment, Parks, and Water Security. QLD - Acid sulfate soils series - @ The State of Queensland Environment and Science. SA - Acid Sulfate Soil Potential - @ Government of South Australia Department for Environment and Water. TAS - Marine Acid Sulfate Soils; Inland Acid Sulfate Soils; Coastal Acid Sulfate Soils; Acid Sulfate Soils - Resource Management and Conservation. VIC - Coastal Acid Sulphate Soils - Department of Jobs, Skills, Industry and Regions. WA - Acid Sulfate Soil Risk Map 100K; Soil landscape land quality - Subsurface Acidification Risk - @ Department of Water and Environmental Regulation; Department of Primary Industries and Regional Development.

Geology and Topography

Naturally Occurring Asbestos NOA

Naturally Occurring Asbestos in NSW @ State of New South Wales and Department of Planning and Environment; WA Management of Asbestos In Mining Operations Department of Industry and Resources; SA Carbonate-hosted asbestos occurrences in South Australia: review of geology and implications for mesothelioma [Hendrickx, M.]; Mapping of naturally occurring asbestos in NSW [NSW Trade & Investment, Division of Resources & Energy]

Geology

ACT - New South Wales Seamless Geology dataset (latest version 2.3), various geology data sources 1:25K to 1:100K - @ Department of Regional NSW. NSW - New South Wales Seamless Geology dataset (latest version 2.3) - @ Department of Regional NSW. NT - Geological digital data 1:100 000 sheet - @ Commonwealth of Australia (Geoscience Australia). QLD - Queensland geology detailed surface geology 1:100K and Queensland geology state surface geology 1:2M - @ State of Queensland (Department of Resources). SA - 1:100K Geology (surface geology) - @ SA Government Department of Energy and Mining, Customer Services. TAS - 1:25K and 1:250K Geology Data and Maps - @ TAS Government Department of Infrastructure, Energy, and Resources (Mineral Resources Tasmania). VIC - Geological units represented as two dimensional polygons (1:50,000), and Geological units represented as two dimensional polygons (1:250,000) - @ VIC Government Department of Jobs, Skills, Industry and Regions. WA - 1:50K Geological series map, 1:100K Geological series map, and 1:500K State interpreted bedrock geology - @ WA Government Department of Mines, Industry Regulation and Safety.

GDE & Hydrogeology Constraints

Groundwater Aquifers

Groundwater Aquifers - The National Hydrogeological Inventory, Commonwealth of Australia (Geoscience Australia). Australian Hydrological Geospatial Fabric @ Department of Climate Change, Energy, the Environment and Water, National Aquifer Network © Commonwealth of Australia (Bureau of Meteorology)

Groundwater Protection Areas and Groundwater Restricted Use Zones

Groundwater Protection Areas – © State of New South Wales and Department of Planning and Environment, NT Environment, Parks and Water Security, QLD Department of Resources, SA Environment Protection Authority (EPA), TAS TasWater, VIC Department of Environment, Land, Water & Planning; WA Department of Water and Environmental Regulation. Groundwater Licences - The Perth Groundwater Atlas and Department of Water (DoW) database © State of Western Australia. NSW - Groundwater Restricted Use Zones: EPI Groundwater Vulnerability, Botany Groundwater Management Zone, Williamstown Management Area, UPSS Environmentally Sensitive Zone, EPI Drinking Water Catchments – EPA NSW; NSW Department of Planning, Industry and Environment. NSW Temporary Water Restrictions Order Botany Sands groundwater - @ The NSW Department of Industry—Lands & Water. NT - Groundwater Restricted Use Zones: NT Water Protection Areas - Department of Environment, Parks, and Water Security. QLD - Groundwater Restricted Use Zones: Water Licences, Groundwater Management Areas, Surface Water Management Areas, Water Plan Catchments - Department of Resources. SA - Groundwater Restricted Use Zones: EPA Groundwater Prohibition Area – EPA SA. TAS - Groundwater Restricted Use Zones: Drinking Catchments, Water Management Plan Areas, Water Districts. VIC - Groundwater Restricted Use Zones: GMA, Groundwater Resources, Water Supply Protection Areas, Water Asset Database, Groundwater Catchments – © EPA Victoria. WA -Groundwater Restricted Use Zones: Gngangara Groundwater Protection, Jandakot Groundwater Protection, Groundwater Areas, PDWSA, Water Licences – Department of Water and Environmental Regulation.

Wetlands

Ramsar Wetlands of Australia - Directory of Important Wetlands in Australia (DIWA) – DCCEEW Department of Climate Change, Energy, the Environment and Water. ACT - Wetland Mapping - © State of New South Wales and Department of Planning and Environment. Important Wetlands - © Australian Capital Territory. NSW - Wetlands, Ramsar Sites, and various sources – © State of New South Wales and Department of Planning and Environment. NSW Environmental Planning Instruments (Wetlands, Coastal Wetlands), © State Government of NSW and NSW Department of Planning, Housing, and Infrastructure. NT - Wetlands and Ramsar Sites - @ Department of Environment, Parks, and Water Security. QLD - Local Significant Wetlands and Ramsar Sites - @ Department of Environment and Science. SA - Ramsar Wetlands - @ Department for Environment and Water. TAS - Ramsar Wetlands - @ Land Tasmania. VIC - Victoria Wetlands and Ramsar Sites, @ Department of Energy, Environment and Climate Action. WA - Geomorphic Wetlands (various), Consanguineous Wetlands Suites, Ramsar Sites, @ Department of Biodiversity, Conservation and Attractions.

Groundwater Dependent Ecosystems

Groundwater Dependent Ecosystems (GDE) – Terrestrial (subsurface) and Aquatic (surface) - © Commonwealth of Australia (Bureau of Meteorology).

Groundwater Bores & Lithology details

Groundwater bores and lithology - National Groundwater Information System (NGIS) Dataset. - © Australian Government Bureau of Meteorology. © Water NSW. Groundwater Bores – © Australian Capital Territory. VIC Groundwater Sites, Domestic and stock groundwater bores @ DELWP. WA GW Bores, @ Department of Agriculture Resource Management. SA WaterConnect @ State of South Australia.

Groundwater Salinity

AUS - Groundwater Salinity © Commonwealth of Australia, Bureau of Meteorology. Groundwater Salinity - ACT - Canberra Hydrogeological Landscape, Hydrogeological Landscape Reports, Salinity, ACTmapi @ ACT gov. NSW – Salinity locations and mapping, Hydrogeological landscapes, @ NSW Environment and Heritage. NT - Dryland Salinity Hazard of the Northern Territory, @ Environment, Parks, and Water Security NT. QLD - Salinity in Queensland, @ QLD gov. SA - Annual ground water salinity sampling, @ Landscape South Australia. TAS - Groundwater Salinity - © Department of Natural Resources and Environment Tasmania. VIC - Groundwater Salinity - © State Government of Victoria. Groundwater Salinity - Department of Water and Environmental Regulation. WA – Salinity & Dryland salinity in Western Australia, @ Department of Agriculture and Food WA.

Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes)

Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes) – NSW Planning & Environment (Resources & Energy); Department of Energy, Environment and Climate Action. Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes) – © The State of Queensland, © Commonwealth of Australia (Geoscience Australia), Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes, Drillholes within South Australia, Mineral Drillholes) - @ SA Government Department for Environment and Water; Department for Energy and Mining. Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes) - Department of Water and Environmental Regulation, © Government of Western Australia Department of Mines, Industry Regulation and Safety. Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes), various sources @ Land Insight National Land Use Atlas (NLUA).

Section 3 - Environmental Registers, Licences and Incidents

Contaminated Land Public Register

ACT - Register of Contaminated Sites, Contaminated Land Search (per request) - © Australian Capital Territory, Environment Protection Authority. NSW - Sites Notified as Contaminated, Records of Notices - © State of NSW and the NSW Environment Protection Authority. NT - Contaminated Land Audit, Pollution Abatement Notice - Northern Territory Environment Protection Authority. QLD - Contaminated Land Search (Environmental Management and Contaminated Land Registers – per lot) - © The State of Queensland (Department of Environment, Science, and Innovation). SA - Site Contamination Index, Assessment Areas - © Government of South Australia Environment Protection Authority. TAS - Regulated Sites and Premises, Lutana, and Parts of Hobarts Eastern Shore - © The Crown of Tasmania, Environment Protection Authority. VIC - Priority Sites Register, Pollution Abatement Notice - © EPA Victoria. WA - Contaminated Sites Database - © Government of Western Australia, Department of Water and Environmental Regulation.

Licences, Approvals, & Assessments

ACT - Environment Protection Authorisation Search, Environment Protection Agreement Search - © Australian Capital Territory, Environment Protection Authority. NSW - POEO Public Register - © 2023 State of NSW and the NSW Environment Protection Authority. NT - Environment Protection Licences - © Northern Territory Environment Protection Authority. QLD - Environmental Authorities - © The State of Queensland (Department of Environment, Science, and Innovation). SA - Licences or Authorisations, Environment Protection Orders (EPO), Clean-Up Orders (CUO), Assessment Areas - © Government of South Australia Environment Protection Authority. TAS - Regulated Premises - © The Crown of Tasmania, Environment Protection Authority. VIC - Permissions Register, Audit Reports - © EPA Victoria. WA - Licences and Works Approvals - © Government of Western Australia, Department of Water and Environmental Regulation.

Sites Regulated by Other Jurisdictional Body

Contaminated Legacy Areas

Contaminated Legacy Areas mapped by Land Insight Research team @ Land Insight National Land Use Atlas (NLUA). James Hardie Asbestos Waste Contamination Legacy @ The Australian Asbestos Network, Loose-fill Asbestos register @NSW Department of Climate Change & Water. Loose Fill Asbestos @ ACT Government. Asbestos Register @NT Government. Asbestos Register @ QLD Government. Asbestos Safework @ Government of South Australia. Asbestos Safety WorkSafe @Tasmania Government. Asbestos in Victoria @State Government of Victoria. Asbestos – contaminated sites @ Government of Western Australia Department of Health. National Pollutant Inventory - © Commonwealth of Australia, Department of Agriculture, Water, and the Environment. Parramatta River Catchment Land Use Areas - Compiled by Land Insight derived from Parramatta River Estuary Processes Study (2010); and @ Land Insight National Land Use Atlas (NLUA).

Mines and Quarries (current locations, derelict and abandoned mines and quarries, mine shaft)

Current and Historical location of mines and quarries, derelict mine locations mapped by Land Insight Research team @ Land Insight National Land Use Atlas (NLUA). Australia's abandoned mines: rehabilitated @Australian Geographic. List of mines, List of open-pit mines @ Wikipedia. Goldfields places & Maps- National Library of Australia and State Libraries. A Geospatial Database for Effective Mine Rehabilitation in Australia – Monash University, various authors. Inventory of abandoned mines in Australia @ Australian Government AusIndustry. National Heritage Places - Coal Mines Historic Site @Department of Climate Change, Energy, the Environment and Water. Legacy Mines Program @ State of New South Wales through Regional NSW. Map of NSW Mines @NSW Minerals Council. Legacy Mines @ Northern Territory Government. Abandoned mine remediation projects - @ The State of Queensland Government. Map of abandoned mines in Queensland. Queensland's quarry operations @ QLD Government Department of Resources. South Australian Mining History @ Mining Heritage, Former Mines, SARIG @ Government of South Australia @ EPA SA. Mineral Resources Tasmania @ Department of State Growth Mineral Resources Tasmania, Abandoned Mines Rehabilitation in Tasmania @ Department of Infrastructure, Energy and Resources. Tasmania Goldfields dataset. Mineral Occurrences Data @ Tasmania Government. Rehabilitating Mines @ Copyright Victorian Auditor-General's Office, @ Mining Legacies. Historical Mining Activities @ VIC Department of Jobs, Skills, Industry and Regions. Heritage Victoria. Mineral Assessment @ VIC Department of Natural Resources and Environment. Abandoned Mines, Inactive And Abandoned Mine Land Reports - @ WA Department of Mines, Industry Regulation and Safety. Abandoned Mines Program @ WA Department of Energy, Mines, Industry Regulation and Safety. Mines and Mineral Deposits (MINEDEX) - @ WA Department of Energy, Mines, Industry Regulation and Safety

Defence, Military Sites, and UXO Areas

Current and Historical Defence and Military sites mapped by Land Insight Research team @ Land Insight National Land Use Atlas (NLUA). Department of Defence 3 Year Regional Contamination Investigation Program (RCIP) © Commonwealth of Australia, Department of Defence. Defence Sites @ Australian Government - Various sources and Department of Defence @ Commonwealth of Australia. @ Land Insight National Land Use Atlas (NLUA). National Unexploded Ordnance Program (UXO) @ Australian Government Defence.

Former Gasworks Sites

AUS – Gasworks sites (Various), @ National Trust of Australia, @ National Library of Australia, @ Pocket Oz Sydney Guide, @ wikipedia. Former gasworks site locations mapped by Land Insight Research team @ Land Insight National Land Use Atlas (NLUA). Archaeological database and records @ New England Archaeology. Images, Wikipedia, @Flickr images. The historical marker database. ACT – Gaswork sites @ ACT gov. NSW – Former gasworks sites @ EPA NSW, @ NSW Department of Environment and Conservation, Heritage NSW. NT - Gaswork sites @ EPA NT. QLD - Gaswork sites @ DES QLD. SA - Gaswork sites @ EPA SA, @ SA Heritage Places Database Search (maps SA). TAS - Gaswork sites @ EPA TAS, @ Lighscape Tasmania. VIC – Gasworks sites,

@EPA VIC, @ Development Victoria. WA - Gasworks sites, @EPA WA, @ Department of Water and Environmental Regulation WA.

PFAS sites

AUS – National PFAS Investigation Program – State-wide PFAS Investigation Program @Australian Government, Department of Infrastructure, Transport, Regional Development, Communications and The Arts. PFAS research @ Land Insight National Land Use Atlas (NLUA).

PFAS Investigation and Management Program - PFAS contamination at Department of Defence sites, @ Defence Government. @ Australian Government Defence. Metropolitan Fire Brigade stations. Potential historical use of PFAS @ Australian Government.

PFAS Taskforce. Airservices Australia National & PFAS Management Program, Airservices Australia.

ACT - Potential PFAS contaminated sites in the ACT - @ ACT Environment Protection Authority. NSW - The NSW Government PFAS Investigation Program, @ State of NSW and the NSW Environment Protection Authority. NT – PFAS National Environmental Management Plan (NEMP) @ NT EPA. QLD - PFAS site investigations, PFAS in QLD, @ QLD government. SA - Per- and poly-fluoroalkyl substances (PFAS), @SA EPA. TAS - PFAS Contamination, @ TAS EPA. VIC - PFAS management sites, PFAS contamination at Department of Defence sites @ VIC EPA. WA - PFAS Investigations in Western Australia, @ WA government, @ WA DWER.

Section 4 - Potentially Contaminated Areas

Potentially Contaminated Areas, Activities (PCA) – Notifiable Activities Locations and Description

The research database includes Potentially Contaminating Activities or businesses, industries, and activities that have been identified as having an increased likelihood of causing contamination. Many of these are considered notifiable activities, or activities that require regulation to operate. This database is meticulously curated from a variety of information sources and undergoes rigorous validation procedures carried out by our team of scientists, quality assurance professionals, and technical experts, ensuring its accuracy and reliability. The PCA database systematically identifies and classifies site locations into fifty differing categories, including:

Abattoirs, Abrasive Blasting, Agriculture/Horticulture, Airports, Asbestos, Asphalt or Bitumen, Batteries, Breweries/Distilleries, Cement, Concrete or Lime, Cemeteries, Chemicals, Coal Yards, Depots and Storage Yards, Dry Cleaners, Electrical or Electrical Components, Explosives and Dangerous Goods, Extractive Industries, Fire and Rescue, Food Manufacturing, Foundry, Smelting or Refining, Fuel Terminals & Depots, Glass, Ceramics and Plastic, Gun, Pistol or Rifle Ranges, Hospitals and Research Facilities, Landfill Sites, Livestock Dips, Mechanical and Automotive, Metal Fabrication and Treatments, Oil and Gas, Other Infrastructure Facilities, Paint Industries, Petrol Stations, Pharmaceuticals, Port and Marina Operations, Power Plants, Printing and Photography, Rail Industry and Associated Activities, Rubber and Tyre, Storage Tanks, Substations and Switching Stations, Textiles and Tannery, Timber, Pulp and Paper Works, Waste and Recycling Facilities, Wastewater Treatment Facilities.

Potentially Contaminating Activities and Locations (PCA) - © Google; Nearmap data; @ Datajet Australia Pty Ltd – with permission and @ Land Insight National Land Use Atlas (NLUA).

The Potentially Contaminating Activities (PCA) is a unique database proprietary to Land Insights. Please note that not all sources are included; only the most significant or larger databases are referenced for brevity. Individual research on each of these sources has not been included due to the comprehensive nature of the list.

Airports – Designated international airports in Australia @ Department of Infrastructure, Transport, Regional Development, Communities, and the Arts Australian Gov. List of airports Australia @ Wikipedia. Australia Airports Map @ Sydney-australia biz

Cattle Dips: Cattle Dip Site Locator Northern Rivers Region - © State of New South Wales through NSW Department of Industry; and @ Land Insight National Land Use Atlas (NLUA).

Dry cleaners: Dry cleaners @ Drycleaning Institute of Australia; Lawrence Dry Cleaners Locations @ Lawrence Dry Cleaners, and @ Land Insight National Land Use Atlas (NLUA).

Landfill Sites: NSW – Landfill sites @ EPA NSW. QLD - Location of waste sites | Environment, land and water, Closed landfill sites @ QLD gov. SA - Landfill map, EPA SA. TAS – Landfills @ EPA TAS. VIC – Victorian Landfill Register - © EPA Victoria. Waste and Recycling Facilities: National Waste Management Facilities - © Commonwealth of Australia (Geoscience Australia), Australia's waste and resource recovery infrastructure @ DCCEEW @ Land Insight National Land Use Atlas (NLUA).

Petrol Stations: National Liquid Fuel Refineries and Facilities, Liquid Fuel & Aviation Fuel Depots/Terminals, National Liquid Fuel Refineries - © Commonwealth of Australia (Geoscience Australia), Petrol Stations @ Digital Atlas of Australia. Fuelcheck @ Fair Trading NSW gov. @ Land Insight National Land Use Atlas (NLUA).

Power Plants: AUS @ Powerplants Australia. QLD Power Plants map of Queensland @Department of Energy and Climate. Various sources. @ Land Insight National Land Use Atlas (NLUA).

Waste and Recycling Facilities: National Waste Management Facilities - © Commonwealth of Australia (Geoscience Australia), Australia's waste and resource recovery infrastructure @ DCCEEW. @ Land Insight National Land Use Atlas (NLUA). NSW – Waste facilities @ NSW EPA. NT - Waste & Recycling NT, City of Darwin. QLD - Public waste and recycling facilities in Queensland @ Queensland Government Open Data Portal. SA - Waste disposal, Waste depots @ EPA SA. TAS – Waste Centres, Waste Disposal Facilities @ EPA TAS. VIC - Victoria's waste and resource recovery infrastructure, Waste Facility Locations Victoria's Waste and Recycling Infrastructure Map @ Recycling Victoria. WA @ VIC Gov. WA – Waste locations and recycling centres @ DEW WA. @ Land Insight National Land Use Atlas (NLUA).

Historical Business Directories

AUS - AUS Historical Commercial & Trade Directory Data – various sources, see below. UBD business & street directory, Sands & McDougall directories, @ Australian Business Datalist ABDL (with permission)
ACT - 1971, 1981 & 1991 Telecom Australia Yellow Pages Country NSW Directories – Permission for use Sensis 2017.
2005 - 2022 - @ Australian Business Datalist ABDL – with permission
NSW – Sydney Metropolitan Area: 1932-1933 John Sands Sydney Trades Directory
1940 & 1950 Commonwealth of Australia Telephone Directory Sydney
1960-1961 Telecom Australia Pink Pages Sydney – Permission for use Sensis
1970-1971 United Business Directories Sydney – Licenced under Hardie Grant
1974-1975 NSW Post Office Yellow Pages Sydney Buying Guide and Commercial/Industrial Directories – Permission for use Sensis
1980-1981 & 1990-1991 Telecom Australia Yellow Pages Sydney – Permission for use Sensis. 2005 – 2022 @ Australian Business Datalist ABDL
NT - 2005 - 2022 @ Australian Business Datalist ABDL – with permission
QLD - 1865, 1890, 1900, 1906, 1916, 1919, 1924, 1925, 1970 – Pugh's Almanac (copyright expired)
1970-1971 - Brisbane Telephone Directory (copyright expired)
2005 - 2022 - @ Australian Business Datalist ABDL – with permission
SA - 1930, 1935, 1944-45, 1950, 1955, 1960, 1965, 1970, 1973 - Sands & McDougall Melbourne Trade Directory (copyright expired)
2005 - 2022 @ Australian Business Datalist ABDL – with permission
TAS - 1896-1897, 1900, 1905, 1910, 1915, 1920, 1925, 1930, 1935, 1940-41, 1945-46, 1948 - Wises Post Office Directory (copyright expired)
2005 - 2022 @ Australian Business Datalist ABDL – with permission
VIC - 1900, 1905, 1915, 1925, 1935, 1945, 1955, 1965, 1975 - Sands & McDougall Melbourne Trade Directory (copyright expired)
1960-1961, 1970-1971 - Post Office Pink Pages Melbourne – Permission for use Sensis 2017
1981-1982, 1990-1991 - Telstra Yellow Pages Melbourne - Permission for use Sensis 2017
Telstra Yellow Pages Melbourne - Permission for use Sensis 2017
2005 - 2022 @ Australian Business Datalist ABDL – with permission
WA - 2005 - 2022 @ Australian Business Datalist ABDL – with permission

Section 5 – Natural Hazards

Fire Hazards

AUS - Bushfire Prone Areas – © Australian Government Department of Climate Change, Energy, the Environment and Water. Bushfire History - © Commonwealth of Australia (Geoscience Australia). ACT - Bushfire Prone Areas – © ACT Government Environment, Planning and Sustainable Development Directorate. Bushfire History - NPWS Fire History - Wildfires and Prescribed Burns © State Government of NSW and Department of Planning, Industry and Environment. NSW - Bushfire Prone Areas – © State of New South Wales (NSW Rural Fire Service). Bushfire History - © State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water, Wildfires and Prescribed Burns - © State of New South Wales, National Parks, and Wildlife Management Unit. NT - Bushfire Prone Areas – © NT Government of Australia through Department of Environment and Natural Resources. Bushfire History - ©The Commonwealth of Australia through the Department of the Environment and Energy. QLD - Bushfire Prone Areas – © Commonwealth Scientific and Industrial Research Organisation (CSIRO) in conjunction with the State of Queensland (Queensland Fire and Emergency Services). Bushfire History - © State of Queensland (Department of Environment and Science). SA - Bushfire Prone Areas – © SA Government Country Fire Service (CFS), Department of Planning, Transport, and Infrastructure. Bushfire History - © SA Government Department for Environment and Water. TAS - Bushfire Prone Areas – © Tasmania Fire Service. Bushfire History - © Department of Environment, Parks, and Water Security. VIC - Bushfire Prone Areas – © VIC Government Department of Environment, Land, Water and Planning; Department of Transport, Planning and Local Infrastructure. Bushfire History - © VIC Government Department of Transport, Planning and Local Infrastructure. WA - Bushfire Prone Areas – © WA Government Department of Fire and Emergency Services. Bushfire History - © WA Government Department of Fire and Emergency Services.

Flood Hazard

AUS - Flood Planning Area, Other Flood Studies, and Flood History - @ Commonwealth of Australia, @ Bureau of Meteorology. This dataset is digitised and/or aggregated from various verified Council Records, Aerial Photography Interpretation, Flood Imagery Maps, Topographic Maps, Historic Parish Maps, publicly available technical reports, and information digitised by the Land Insight Research team. @Land Insight Research. ACT - Flood Risk and Flood map information © ACT Government Environment, Planning and Sustainable Development Directorate – Environment. NSW - NSW Flood Data Portal @NSW State Emergency Service, © State Government of NSW, NSW Department of Climate Change, Energy, the Environment and Water; and NSW Department of Planning, Housing, and Infrastructure; @ NSW Government Spatial Services. NT - Floodplain maps, Flood monitoring © NT Government of Australia through Department of Environment and Natural Resources, Department of Lands, Planning, and the Environment. QLD - QLD Flood mapping, Historical flood mapping © The State of Queensland, Department of Resources, Queensland Reconstruction Authority. Flood data series and Flood data overlays (various) Queensland Open Data portal. SA - Flood Awareness map, Flood Risk © Crown in right of the State of South Australia, @ Government of South Australia, Department for Environment and Water. Flood mapping (various) SA Data Directory portal. TAS - Tasmania Flood Mapping Projects Reports @ Tasmania State Emergency Services. Floodplain Mapping in Tasmania, Flood Inundation Extent models. © Department of Natural Resources and Environment Tasmania. TAS TheList dataset portal. VIC - Victoria Flood mapping and overlays. © Copyright State Government of Victoria various datasets, Victoria State Emergency Service; Department of Energy, Environment and Climate Action, Department of Environment, Land, Water & Planning. Flood data (various) VIC data portal (data.vic). WA - Floodplain mapping tool, Landgate Flood Map. © Government of Western Australia, @ Department of Water and Environmental Regulation. Flood data (various) WA data portal.

Erosion Hazard

AUS - Soil Erosion Hazards, © Commonwealth of Australia (Geoscience Australia), @ Agriculture DAFF @Australian Government. ACT - Soil and Land Resources of the Australian Capital Territory, © State of New South Wales and Department of Planning and Environment. NSW - Land Soil Capability, Vulnerable lands, © State of New South Wales and Department of Planning and Environment NT - Land System, Soil Conservation, © Department of Environment, Parks, and Water Security. QLD - QLD Erosion prone areas, Coastal and Inland erosion areas, © The State of Queensland. SA - Landscape salad, Mass movement and soil Attributes, Water and Wind Erosion, © Department for Environment and Water. TAS - Coastal Erosion Hazard, Landslide Planning Map, Water and Wind Erosion Statewide map, © Department of Natural Resources and Environment Tasmania. VIC - Geomorphology of Victoria, © VIC Government Department of Jobs, Skills, Industry and Regions. WA - Soil Landscape Land Quality, Land capability assessment, Land instability Risk, Water Erosion Riaks, Wind Erosion Risk, © WA Government Department of Primary Industries and Regional Development.

For more information visit www.landinsight.co or contact orders@landinsight.co.

Terms and Conditions

Terms and Conditions

1. Land Insight & Resources (Land Insight) will perform the Services in accordance with these terms and conditions
2. By submitting the Application Form, the User acknowledges that it has read and understood these terms and conditions and agrees to be bound by them.
3. Land Insight reserves the right to change these terms and conditions. Any change shall be effective upon notice, which may be given by Land Insight posting such change on the Website, or by direct communication with the User.

Services

4. Land Insight agrees to undertake the Services using due skill, care, and diligence.
5. The User assumes the sole risk of making use of, and/or relying on, the report and the Services. Land Insight makes no representations about the suitability, completeness, timeliness, reliability, legality, or accuracy of the Services.
6. Unless Land Insight agrees expressly otherwise:
 - (A) The Services are solely for the use and benefit of the User; and
 - (B) Land Insight does not accept any liability, whether directly or indirectly, for any liability or loss suffered or incurred by any third party placing any reliance on the performance of the Services or any Documents or material arising from or in connection with the Services.
7. The User warrants to Land Insight that it will not use the Services for any purpose that is unlawful or is otherwise inconsistent with these terms and conditions.
8. The User will not alter in any way or provide a copy of the report, or any Document prepared by Land Insight to any other person without Land Insight's prior written consent.

Payment Terms

9. The Fee will be payable at the time of submitting the Application Form unless invoicing payment terms have been negotiated prior to purchase with Land Insight.
10. The User and Land Insight may agree in writing to vary the Services. The fee for each variation shall be agreed between Land Insight and the User.
11. The User agrees to pay Land Insight the Fee, including the fee for any variation requested in accordance with clause 12.
12. If the User's rights are terminated and the User has made an advance payment, Land Insight will refund the User a reasonable proportion of the balance as determined by Land Insight in relation to the value of Services already provided.
13. GST at the prevailing rate is payable in addition to the Fee. The User agrees to pay any other applicable taxes, duties or government-imposed fees related to the User's use of the Services.

Intellectual Property

14. Land Insight owns all intellectual property in the Report and arising from or in connection with the Services.
15. Land Insight grants the User a royalty free licence to use Land Insight's intellectual property for that User's personal assessment of its Property(s) only.

Privacy Policy

16. Upon submitting the Application Form the User consents to Land Insight's use of the personal data provided by the User for the purposes of providing the Services.
17. The Reliance on the report, the use of the Services and the use of Land Insight's Website is at the User's own risk. The User accepts that Land Insight does not guarantee the confidentiality of any communication or information transmitted through the use of the Website.
18. Land Insight will not provide to any third party any personal data provided by a User without the User's permission.
19. The User acknowledges that any feedback provided to Land Insight over the Website is not confidential and that Land Insight has the right to publish, reproduce, disseminate, transmit, distribute and copy (in whole or in part) any such feedback without the approval of the User.
20. Land Insight assumes no responsibility or liability for any content, communications or feedback submitted by a User over the Website. If a User has submitted objectionable content, communications or Feedback, Land Insight may, in its sole discretion, terminate that User's account, take legal action, or notify the appropriate authorities or parties, without prior notice.

Third Party Services

21. The User accepts that, although the Website may contain or provide information regarding applications, products and/or services provided or offered by third parties, Land Insight does not recommend or endorse any such third party applications, products, and/or services.
22. The report contains content provided to Land Insight by other parties (Third Party Content). Land Insight is not responsible for, does not endorse and makes no representations either expressly or impliedly concerning the accuracy or completeness of any Third Party Content. You rely on the Third Party Content completely at your own risk.

Limit and Extent of Liability

23. Land Insight's liability is limited to the amount of the Fee. Liability arising in the provision of the Services is reduced to the extent that it arises out of or in connection with any negligent act or omission by the User.
24. Neither party is liable to the other for loss of actual or anticipated revenue or profits, increased capital, or financing costs, increased operational or borrowing costs, pure economic loss, exemplary or punitive damages or indirect or consequential damages or loss.
25. In no event shall Land Insight or any directors, officers, employees or agents be liable for any indirect, punitive, incidental, special, or consequential damages arising out of or in any way connected with the use of the Website, any delay or inability to use the Website, any information available on the Website, or otherwise arising out of the utilisation of the Website, whether based in contract, tort, strict liability, or otherwise, even if Land Insight has been advised of the possibility of such damages. The negation of damages set forth herein is a fundamental element of the basis of the bargain between Land Insight and the User. The Services would not be provided without such limitations.

Property Verification

26. The User accepts that the Services provided do not take into account any information relating to the actual state or condition of the Property.
27. The User acknowledges that the Services are not to be interpreted as commenting on the physical characteristics or condition of the Property, any particular purpose or use of that Property or the saleability or value of the Property.

Termination and Modification

28. Land Insight reserves the right in its sole discretion to terminate, block or restrict the User's use of the Services or any portion thereof, for any reason, and without notice. In addition, Land Insight reserves the right in its sole discretion to terminate or modify any part of the Website without notice, for any reason.

Anti-Hacking

29. The User agrees not to directly or indirectly, attempt to or disrupt, impair, interfere with, alter, or modify the Website or any of its content.
30. The User agrees not to allow, aid or abet third parties to directly or indirectly, attempt to or disrupt, impair, interfere with, alter or modify the Website or any of its content, or obtain access to any information regarding any User or any other report issued to a User.

Complaints

31. Any complaints in relation to the Services should, in the first instance, be in writing and addressed to Land Insight Customer Service at: info@landinsight.co. Land Insight will respond to any such complaints in writing as soon as practicably possible.

General Matters

32. These terms and conditions are governed by and will be construed and enforced in accordance with the laws of the State of New South Wales, Australia. If any dispute, controversy, or claim arises out of or relating to these terms and conditions, whether sounding in contract, tort or otherwise, it shall be resolved by use of an alternative dispute resolution procedure acceptable to both parties with the assistance of a mediator. If the dispute has not been resolved to the satisfaction of either party within 60 days of initiation of the procedure or if either party fails or refuses to participate in or withdraws from participating in the procedure, then either party may refer the dispute to the court.
33. These terms and conditions apply to all Services provided by Land Insight.
34. If there is any inconsistency between these terms and conditions and any other document or agreement between the parties, these terms and conditions will prevail.
35. These terms and conditions represent the entire agreement between the parties.
36. The User authorises Land Insight to destroy Documents which Land Insight has prepared or holds in connection with the Services 7 years after the last date on which the Services were provided.
37. If any of the terms of the Application Form or the terms and conditions are invalid, unenforceable, or void, the relevant term must be read down to the maximum extent possible or severed from the rest of the Application Form or these terms and conditions.
38. These terms and conditions can only be amended or varied by a written document signed by both parties.
39. Neither party may assign or transfer any rights or obligations arising in the provision of the Services or these terms and conditions without the other party's written consent.

Defined Terms

Application Form	Means the form and accompanying information provided on the Website, completed, and submitted by the User to request the Services.
Document	Includes a report, and any other written or electronic document.
Fee	Means the amount set out in the Application Form or confirmed via an invoice.
Property	Means the property to which the Services and the report relate.
Report	Means the Document prepared by Land Insight and provided to the User which contains the environmental and development data which is relevant to the Property.
Services	Means the review of data and information on which the report is based, and the preparation and provision to the User of the report.
Website	Means Land Insight's online site, which is: www.landinsight.co
User	Means the person(s) set out in the Application Form including that person's permitted successors.



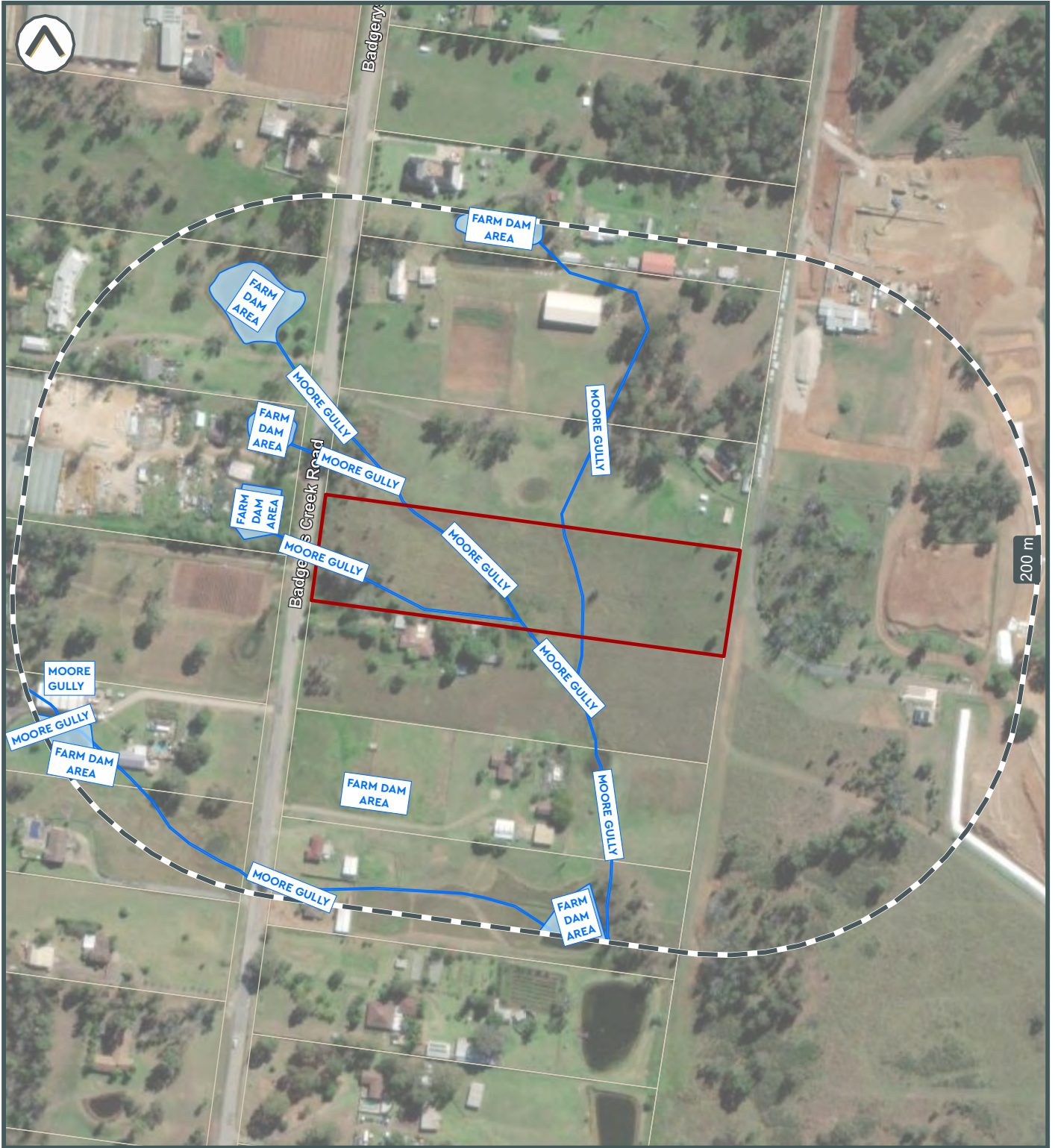
Appendix A

REPORT MAPS

135 Badgerys Creek Rd
Bradfield, NSW



Sensitive Receptors and Features of Interest



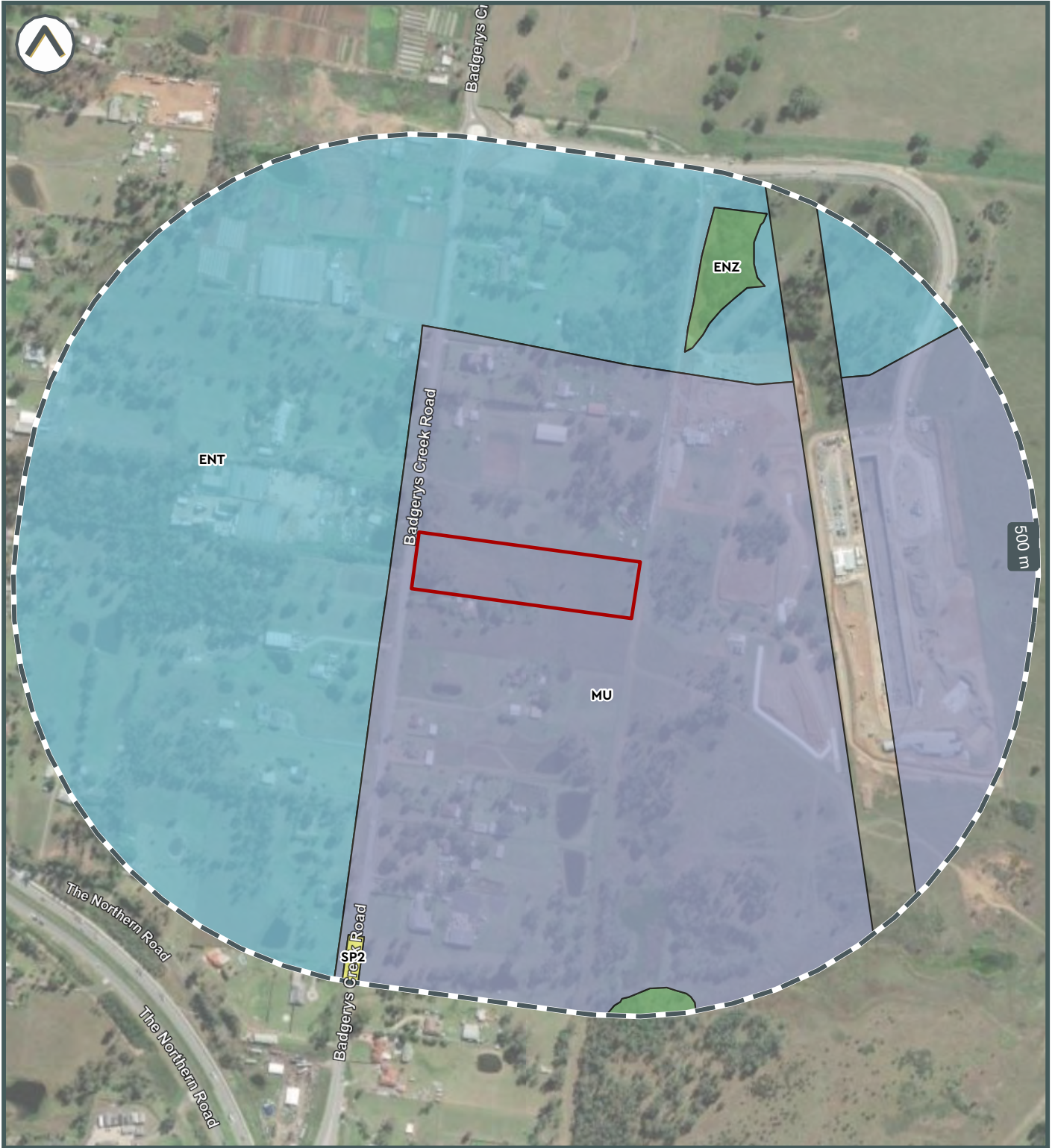
©2025 Land Insight (LI) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area Water Bodies





Zoning



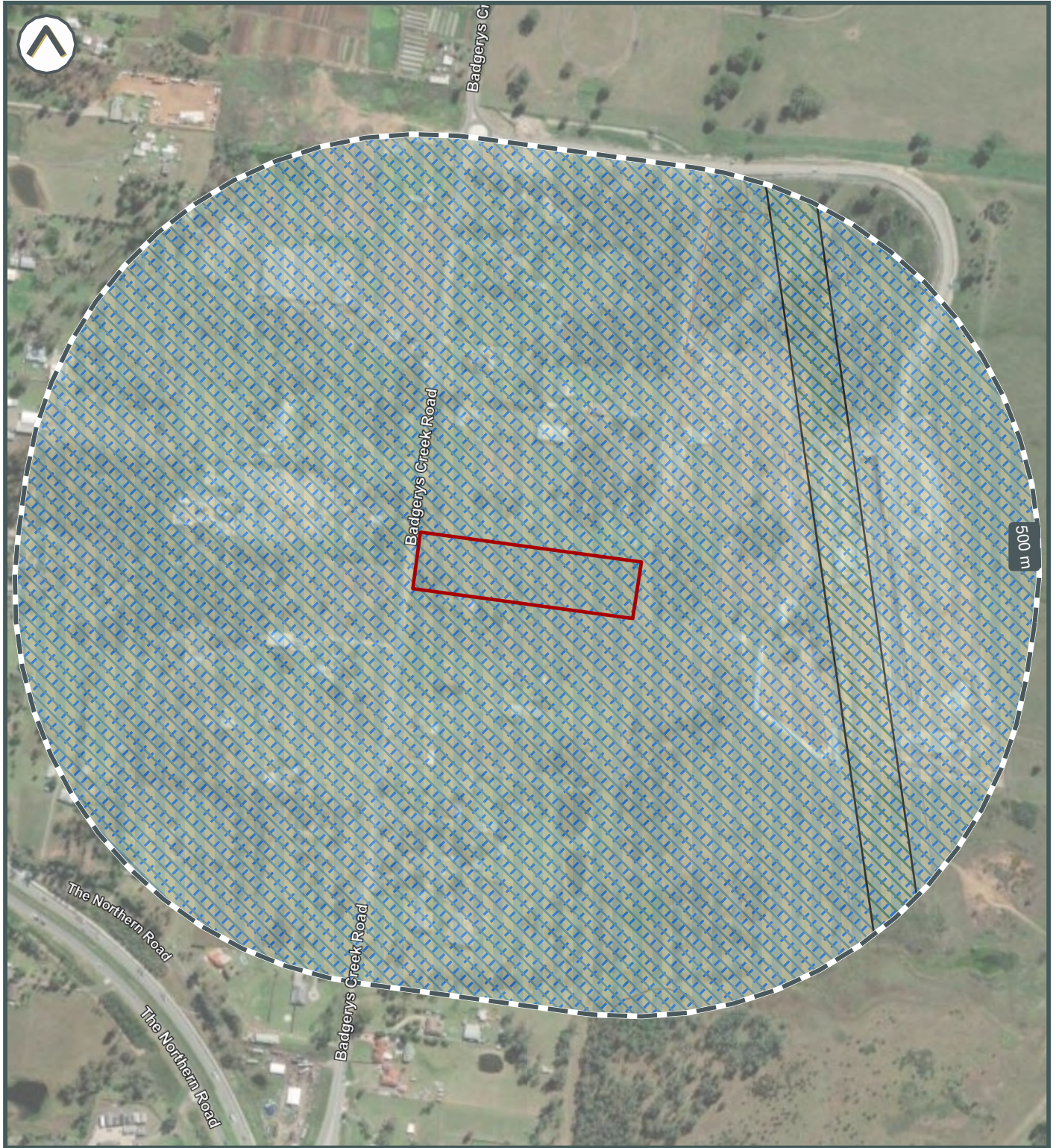
©2025 Land Insight (LI) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- ENZ - Environment and Recreation
- Zone**
- ENT - Enterprise
- MU - Mixed Use
- SP2 - Infrastructure





Planning Overlays




©2025 Land Insight (U) www.landinsight.co | R:\LI-4711 DDR Bradfield NSW\Working\GIS\Project\LI-XXXXX XXX\ 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- | | | |
|--------------------------------|---|-----------------------------|
| Subject area | Hawkesbury Nepean Catchment | Obstacle Limitation Surface |
| Overlays | Hawkesbury-Nepean Sub-Catchments | Precinct Boundary |
| Future Infrastructure Corridor | High Biodiversity Value Area (Existing Native Vegetation) | SEPP Land Application |
| Future Residential Growth Area | Land Reservation Acquisition | Allowable Clearing |
| Growth Centre Boundaries | Lighting Intensity | Coal Seam Gas Exclusions |
| Growth Centres | Minimum Water Use Standard (%) | Greater Sydney |





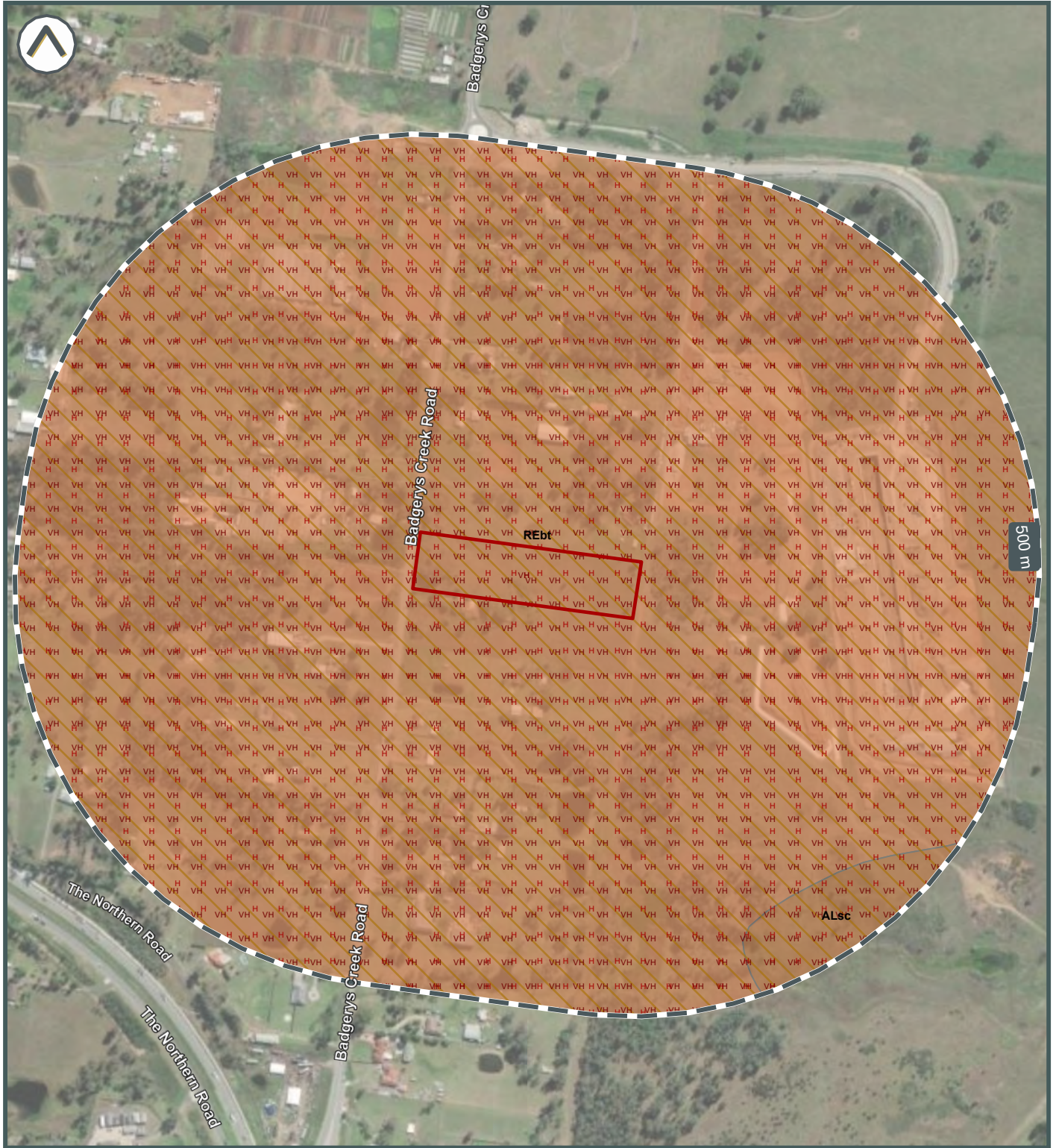
©2025 Land Insight (LI) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

 Subject area



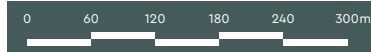


Soil Landscape and Salinity



©2025 Land Insight (U) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide




- Subject area
- High hazard or risk
- ALsc
- 5-19
- Very High
- REbt

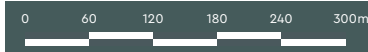




Acid Sulfate Soils

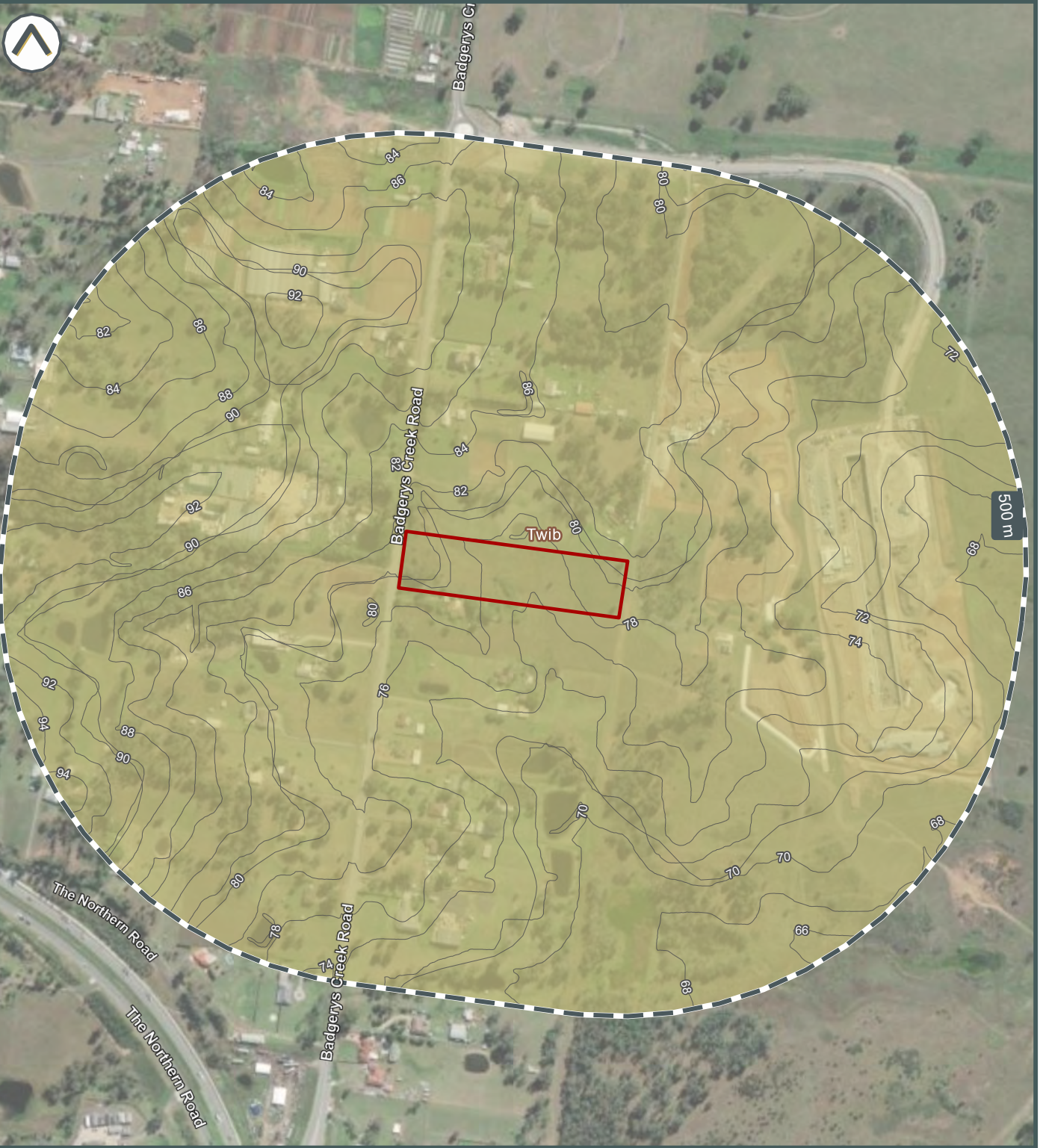


-  Subject area
-  Atlas of Australian Acid Sulfate Soils
-  Extremely low probability of occurrence





Geology and Topography



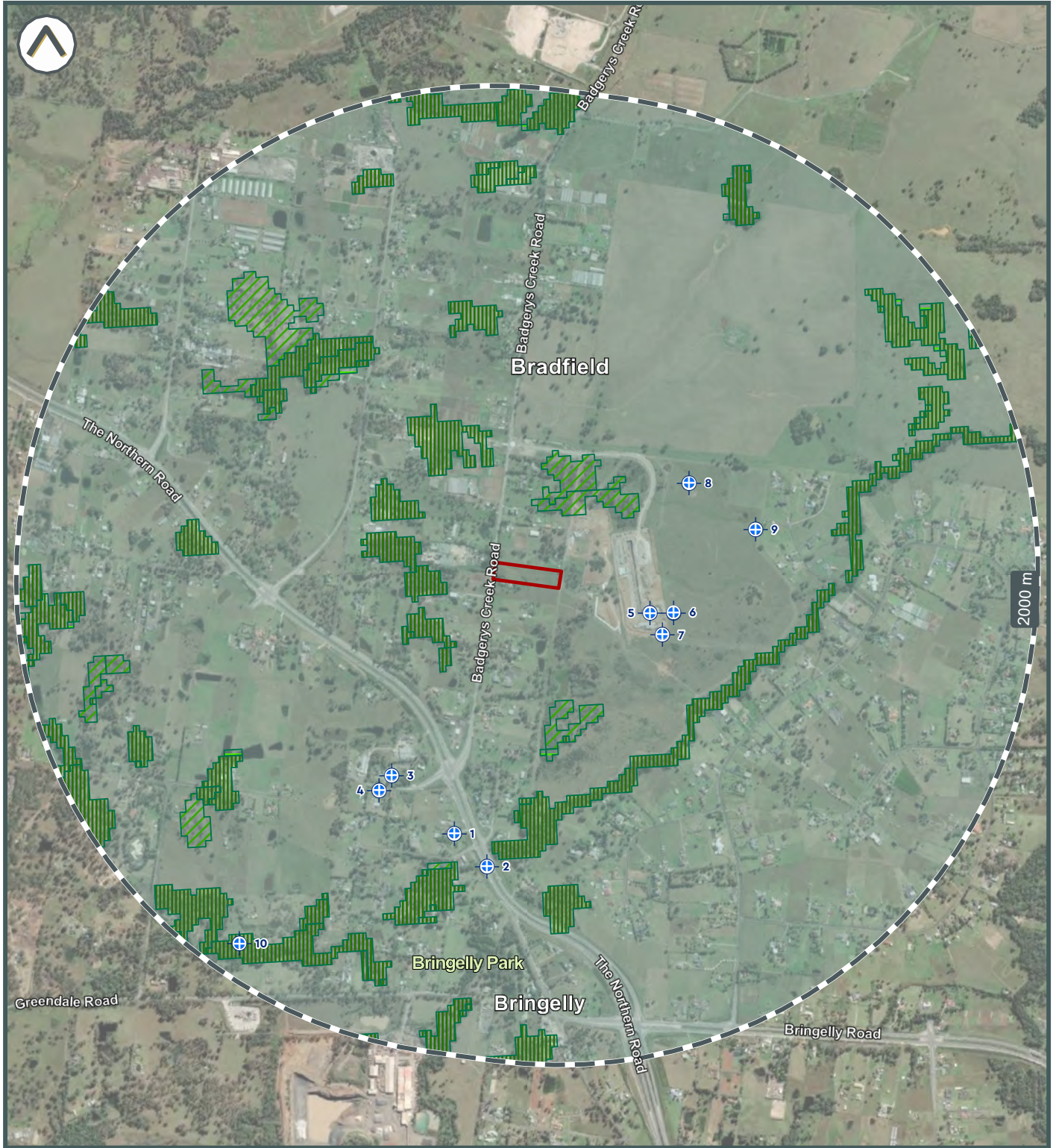
©2025 Land Insight (LI) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Topographic Contour (m)
- Geology Code
- Twib











Groundwater Dependent Ecosystems & Hydrogeology Constraints



©2025 Land Insight (U) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

-  Subject area
-  Groundwater bores

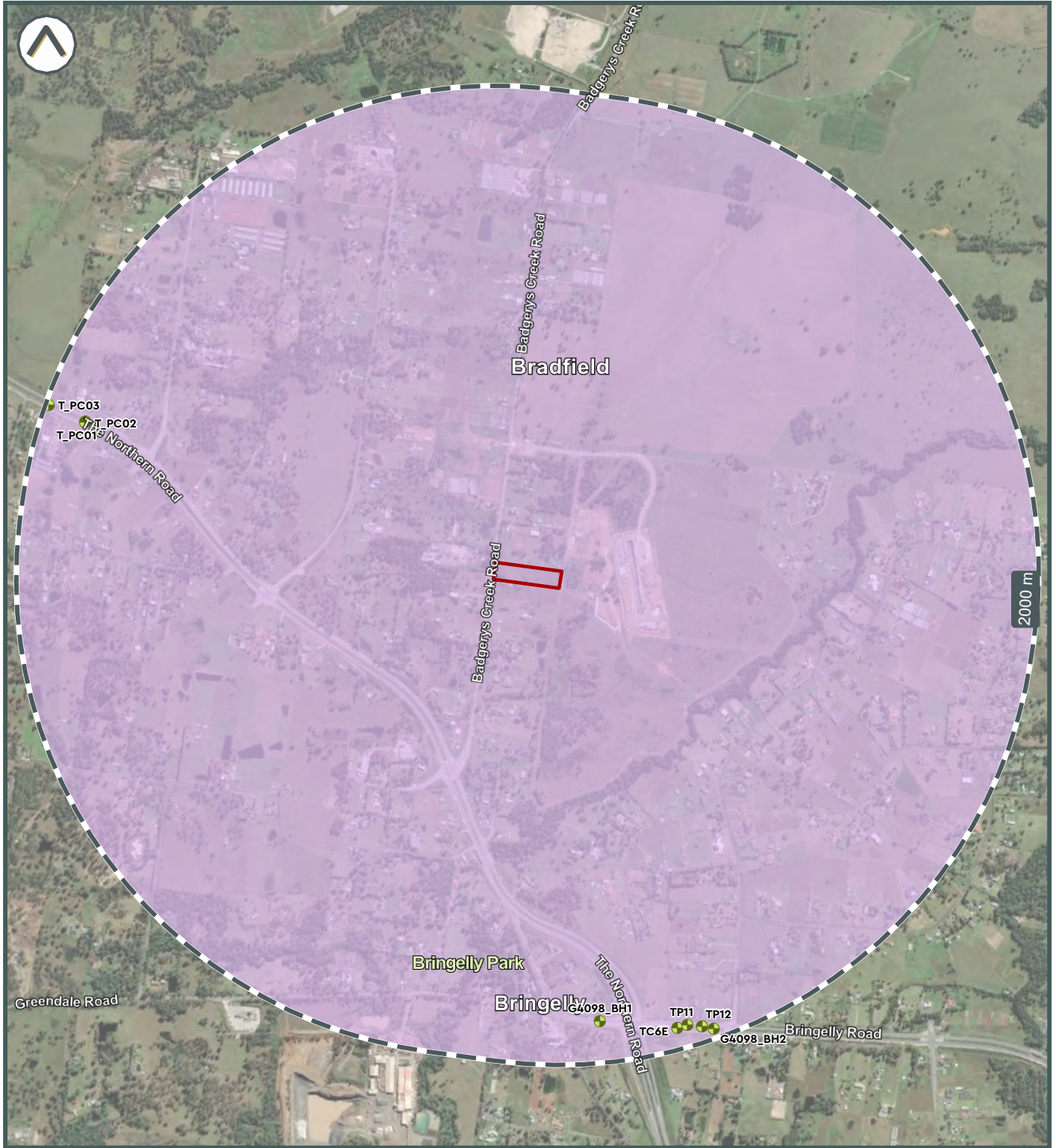
- Ecosystems that rely on Subsurface presence of Groundwater
-  High potential GDE - from national assessment
 -  Moderate potential GDE - from national assessment

-  Low potential GDE - from national assessment
- Aquifer type
-  Porous, extensive aquifers of low to moderate productivity





Groundwater and Other Bores



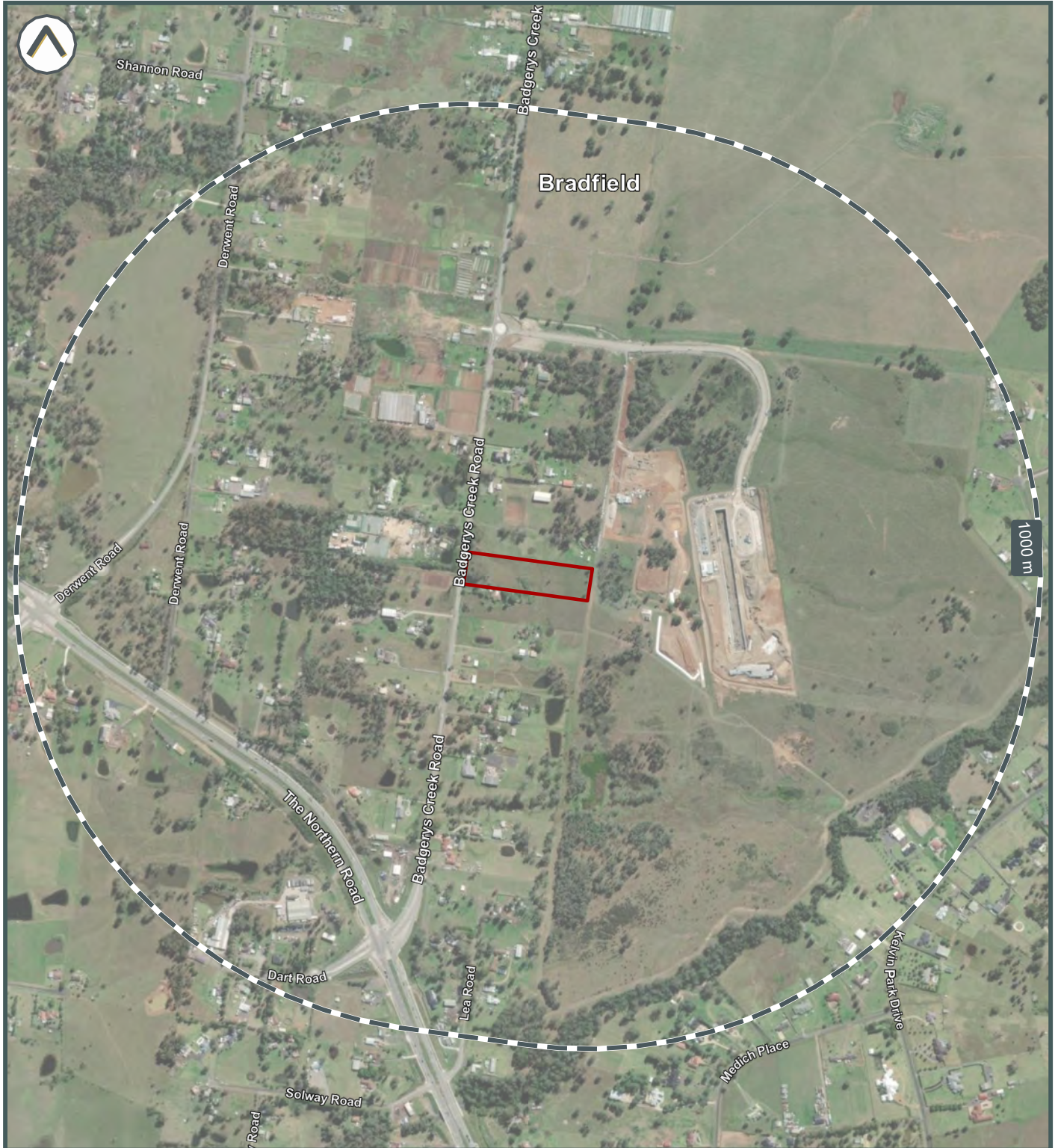
©2025 Land Insight (U) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Other borehole/monitoring well location
- Salinity Class
- Saline (>3000mg/L)




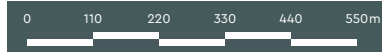


Contaminated Land Public Register



©2025 Land Insight (LI) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

 Subject area




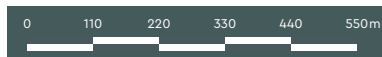


Licences, Approvals & Assessments



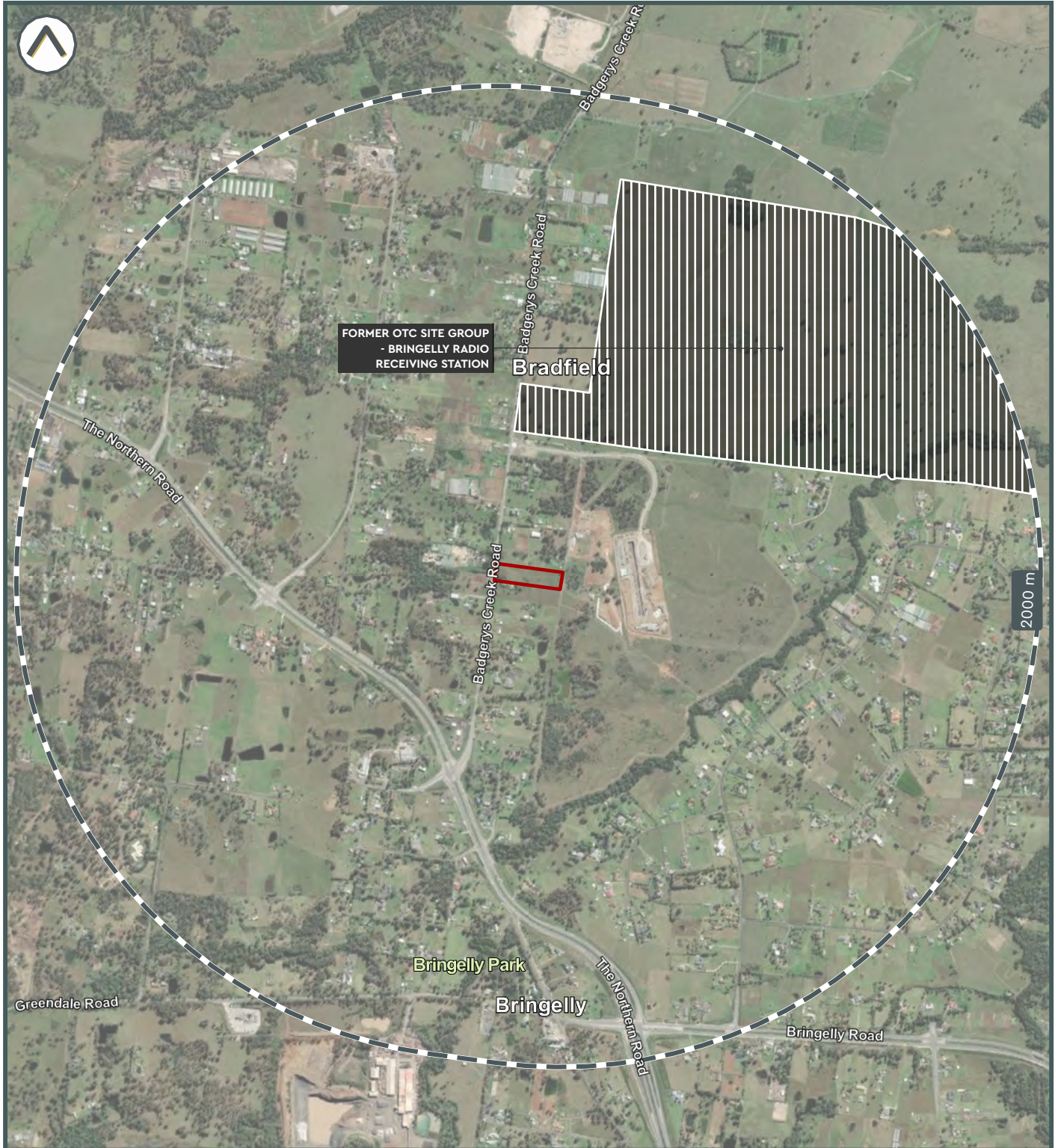
©2025 Land Insight (U) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

 Subject area





Sites Regulated by Other Jurisdictional Body



©2025 Land Insight (U) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Defence Area / Military Sites






Other Potential Hazard Sources



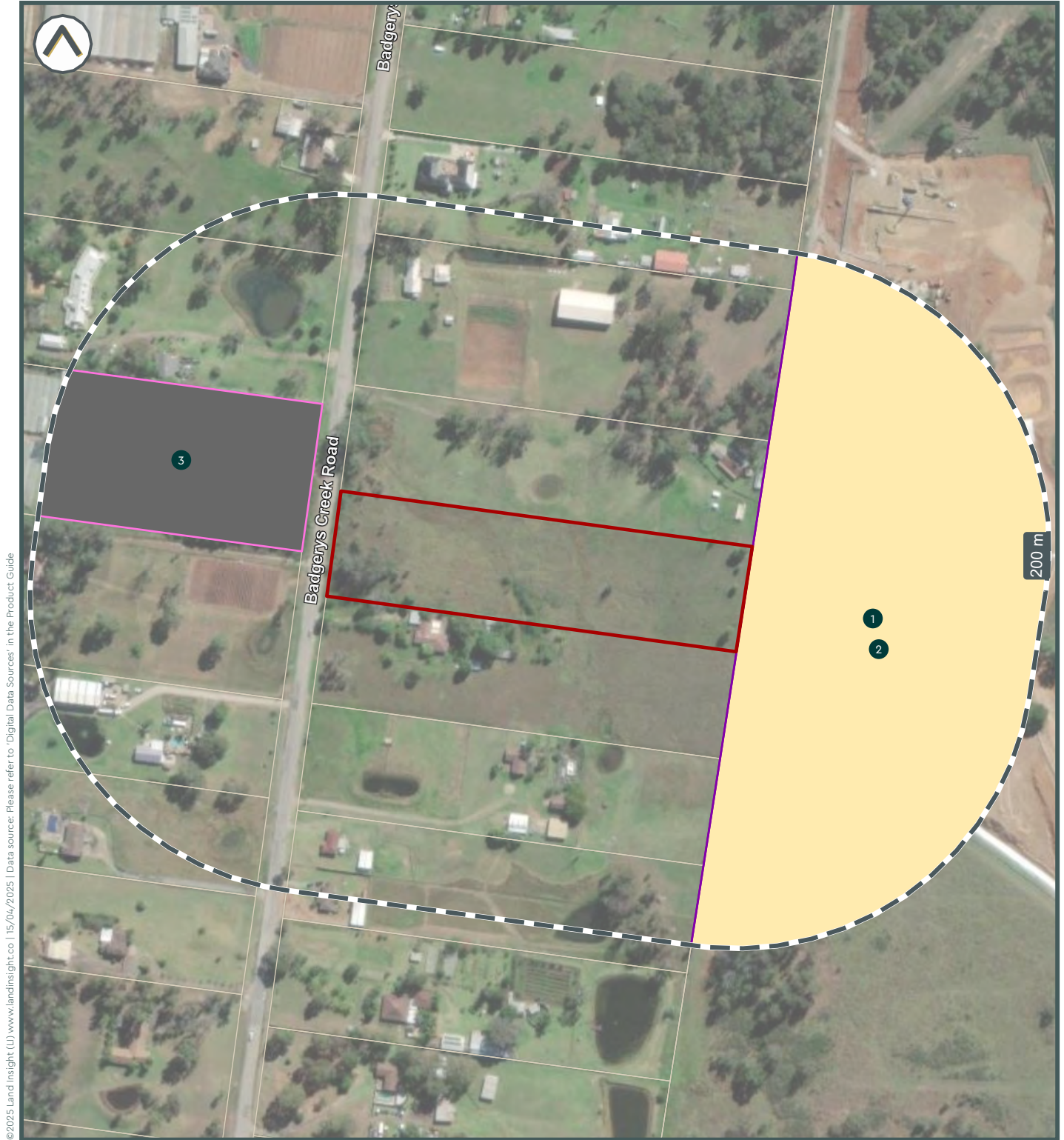
©2025 Land Insight (U) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

 Subject area





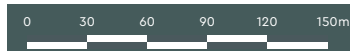
Current Potentially Contaminating Activities (PCAs)



©2025 Land Insight (LI) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Manufacturing and Industrial Facilities
- Potentially Contaminating Activities
- Depots and Storage Yards

Data is current as when this report was created. However due to the turnover of business locations, some addresses may be former.



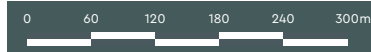


Fire Hazards



©2025 Land Insight (U) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Vegetation Category 3
- Vegetation Buffer
- Vegetation Category 1
- Bushfire Prone Areas





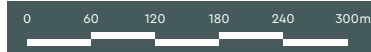
Flood Hazard



©2025 Land Insight (U) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area
 Type
 1% AEP Flood Extent

 Probable Maximum Flood (PMF)



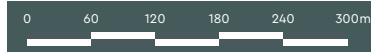


Erosion Hazard



©2025 Land Insight (LI) www.landinsight.co | 15/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

- Subject area
- Moderate
- Wind Erosion Risk
 - Very Low
- Landslip Erosion Risk
 - Very Low
- Water Erosion Risk
 - High



Appendix F – Land Insight: Historical Imagery

An aerial photograph of a vibrant turquoise river winding through a rugged, rocky landscape. The river is surrounded by dense, green and yellowish vegetation. The rocks are large and grey, with some smaller boulders scattered throughout. The water is clear and bright, contrasting sharply with the surrounding terrain.

Appendix B

HISTORIC IMAGERY

135 Badgerys Creek Rd
Bradfield, NSW

Historic Aerial Photograph - 1949



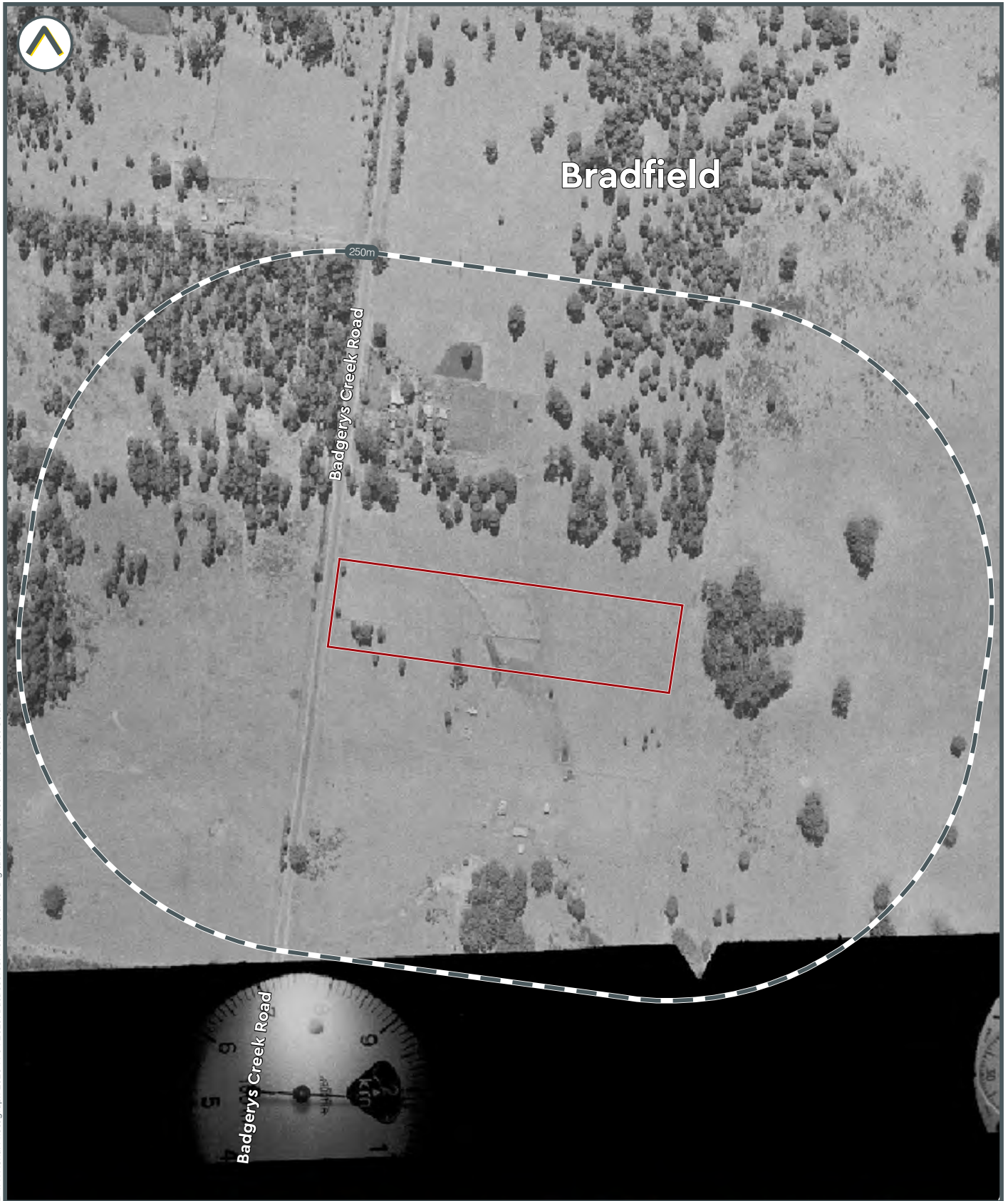
LI-4711 Aerial Photograph, 2025/11/04/2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 1955



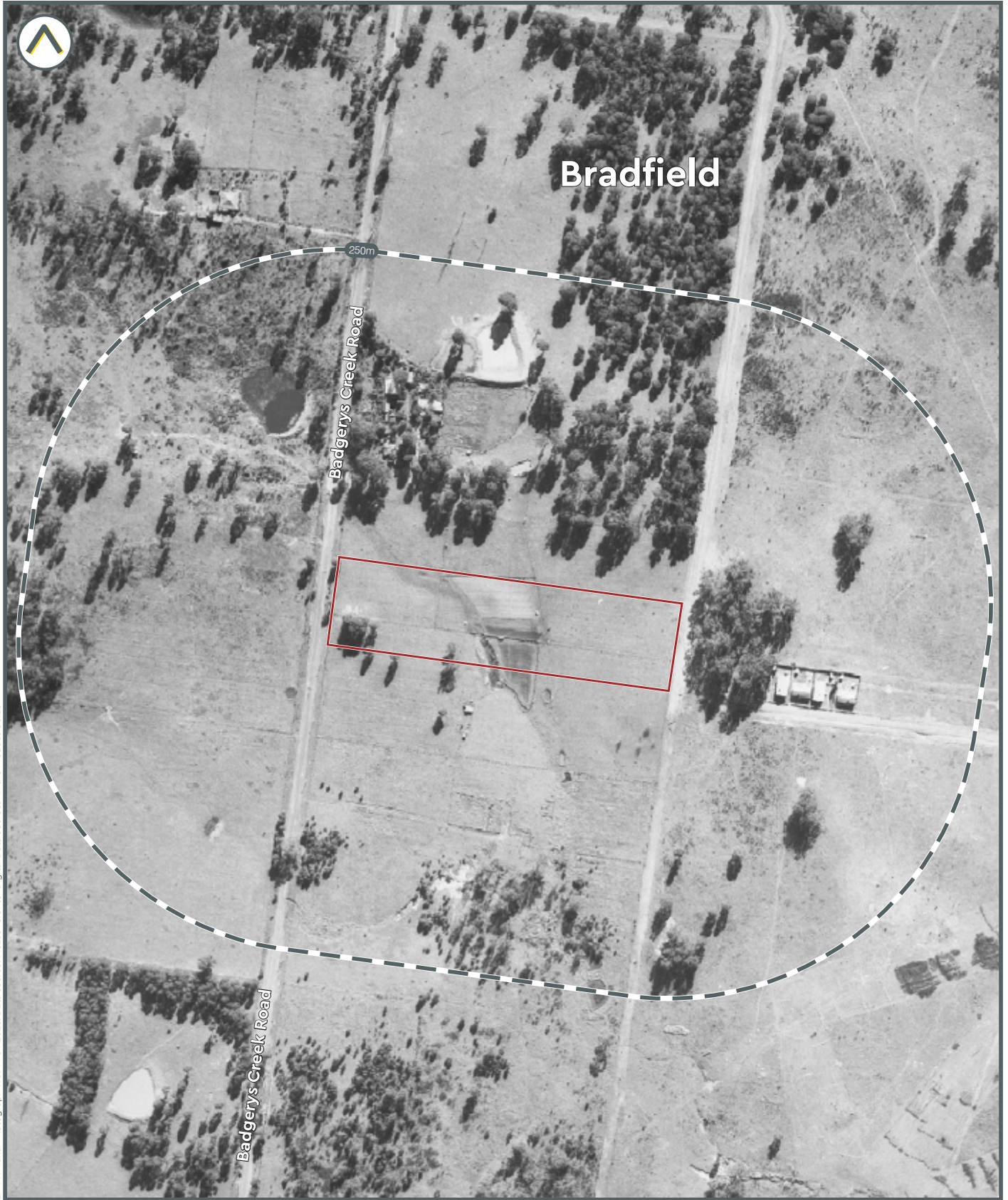
LI-4711 Aerial Photograph, 2025/14, 04, 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 1961



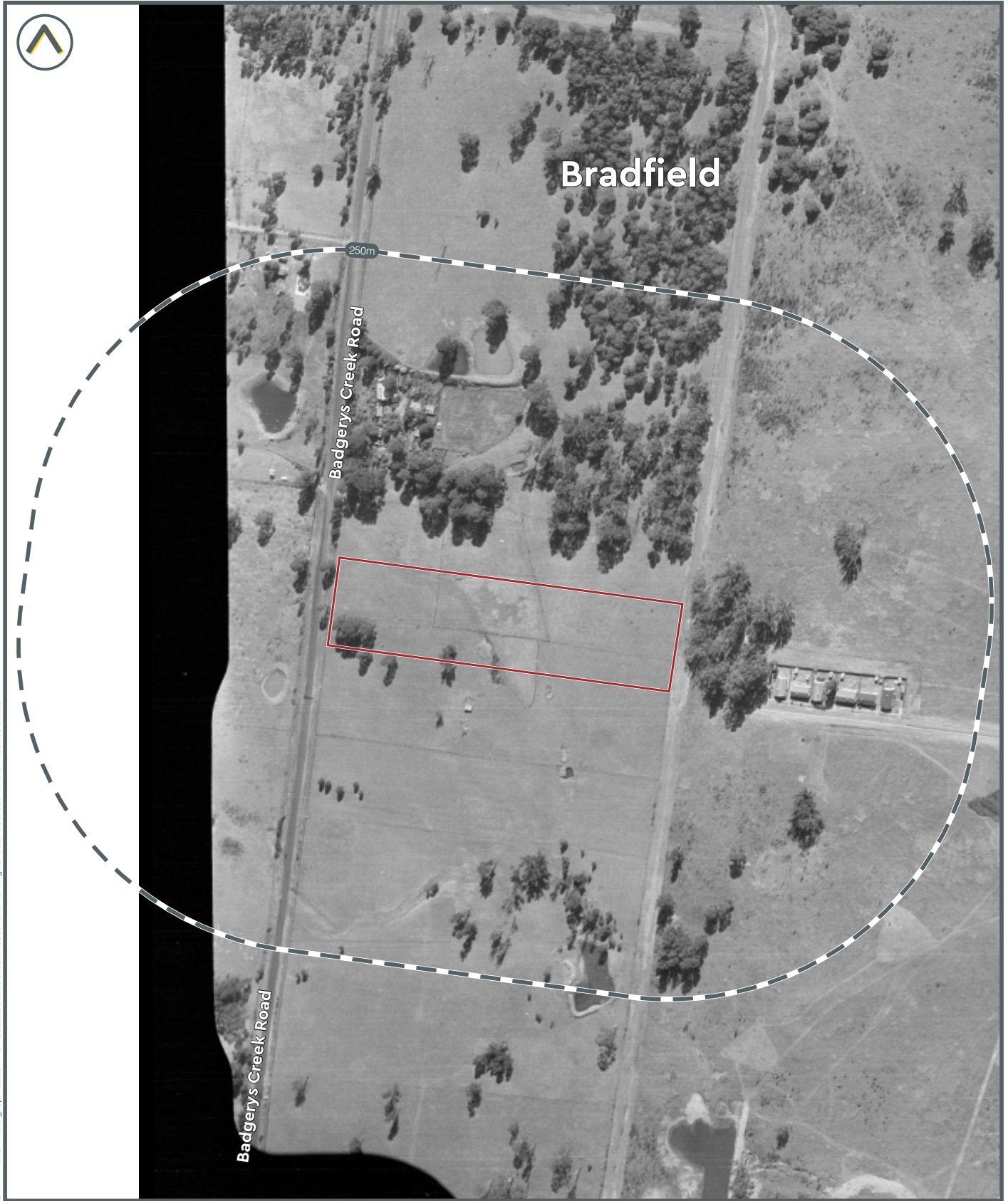
LI-4711 Aerial Photograph, 1961 14. 04. 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 1970



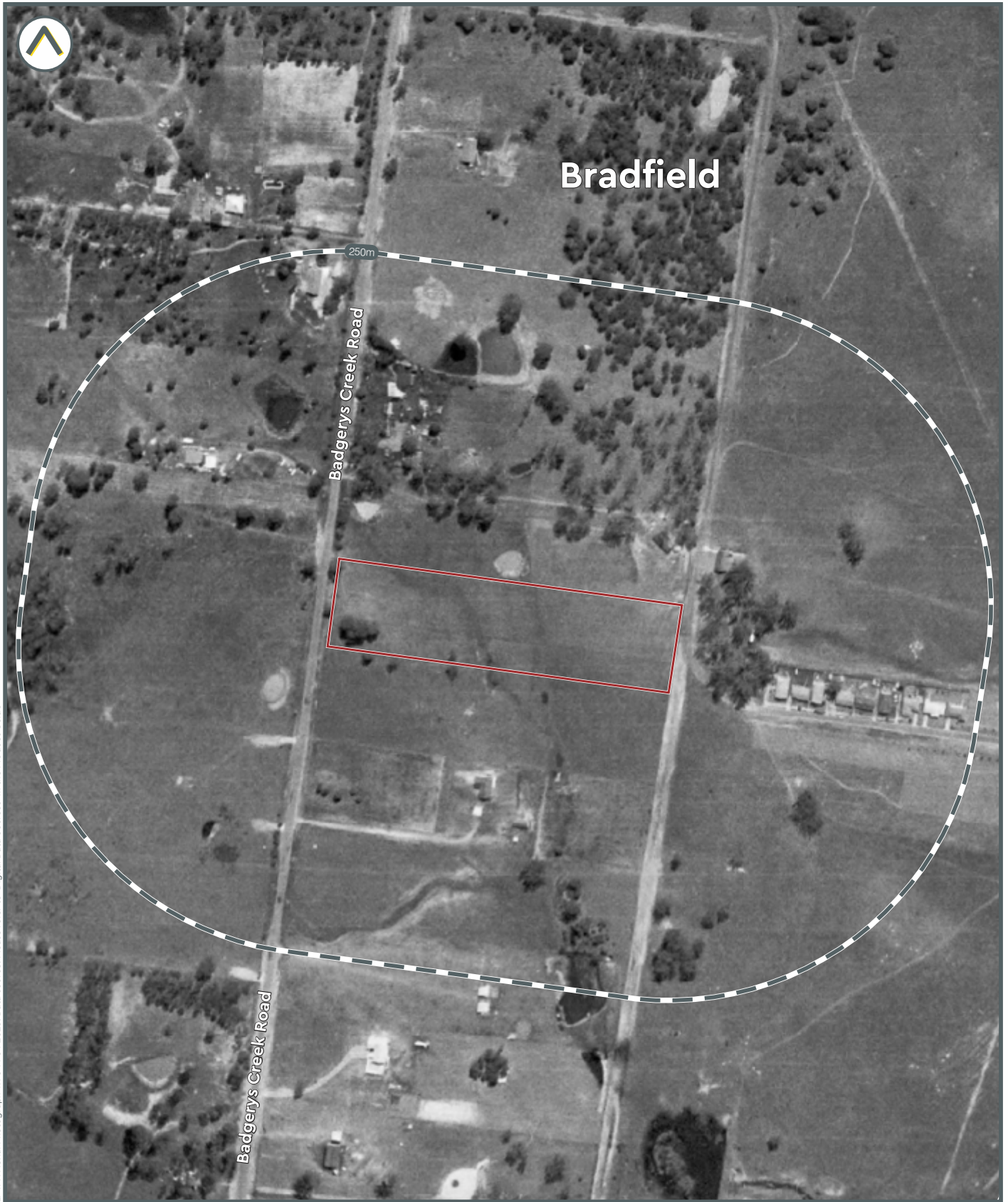
LI-4711 Aerial Photograph, 2025/11/04/2025, Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 1975



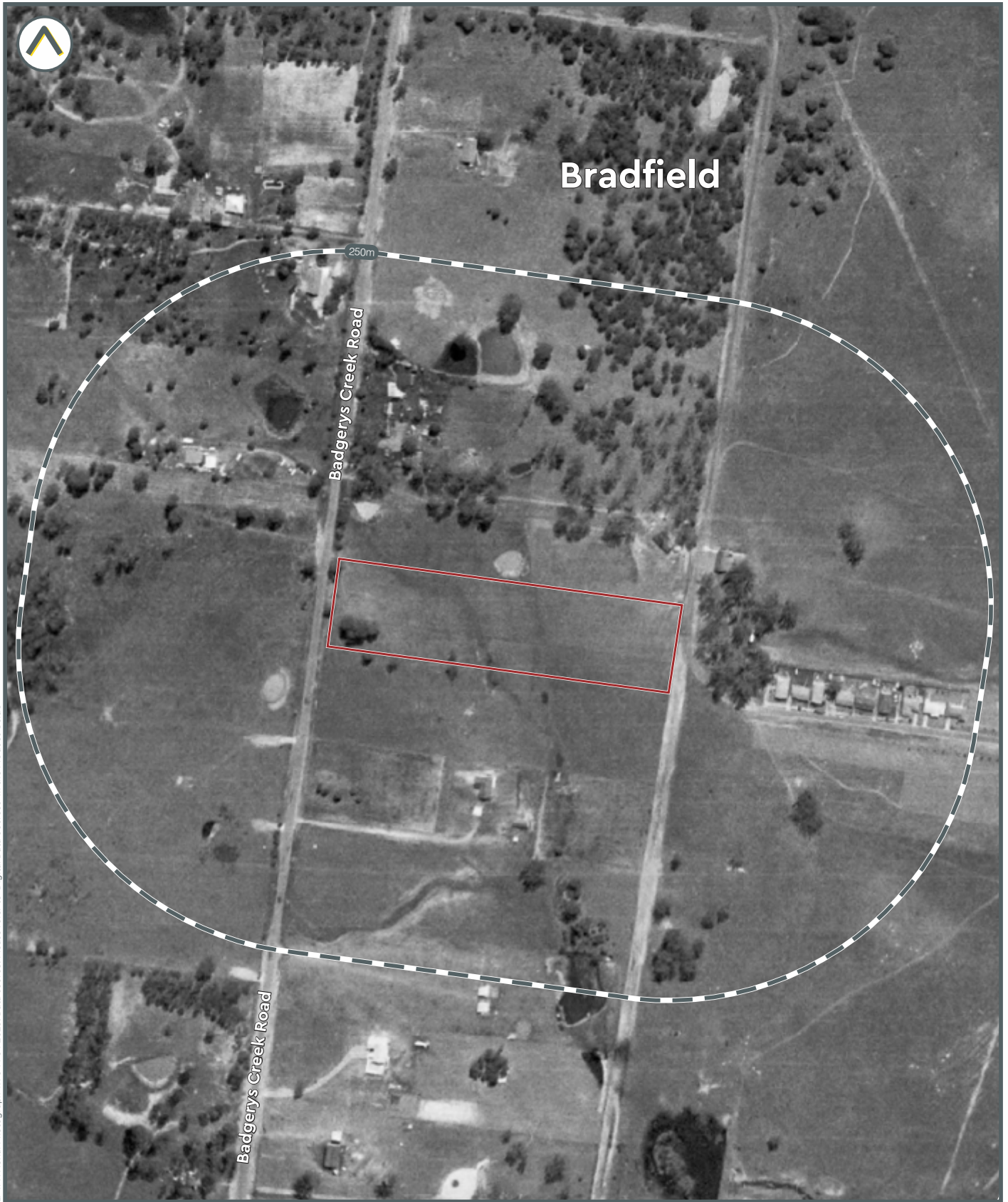
LI-4711 Aerial Photograph, 1975: 14. 04. 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 1975



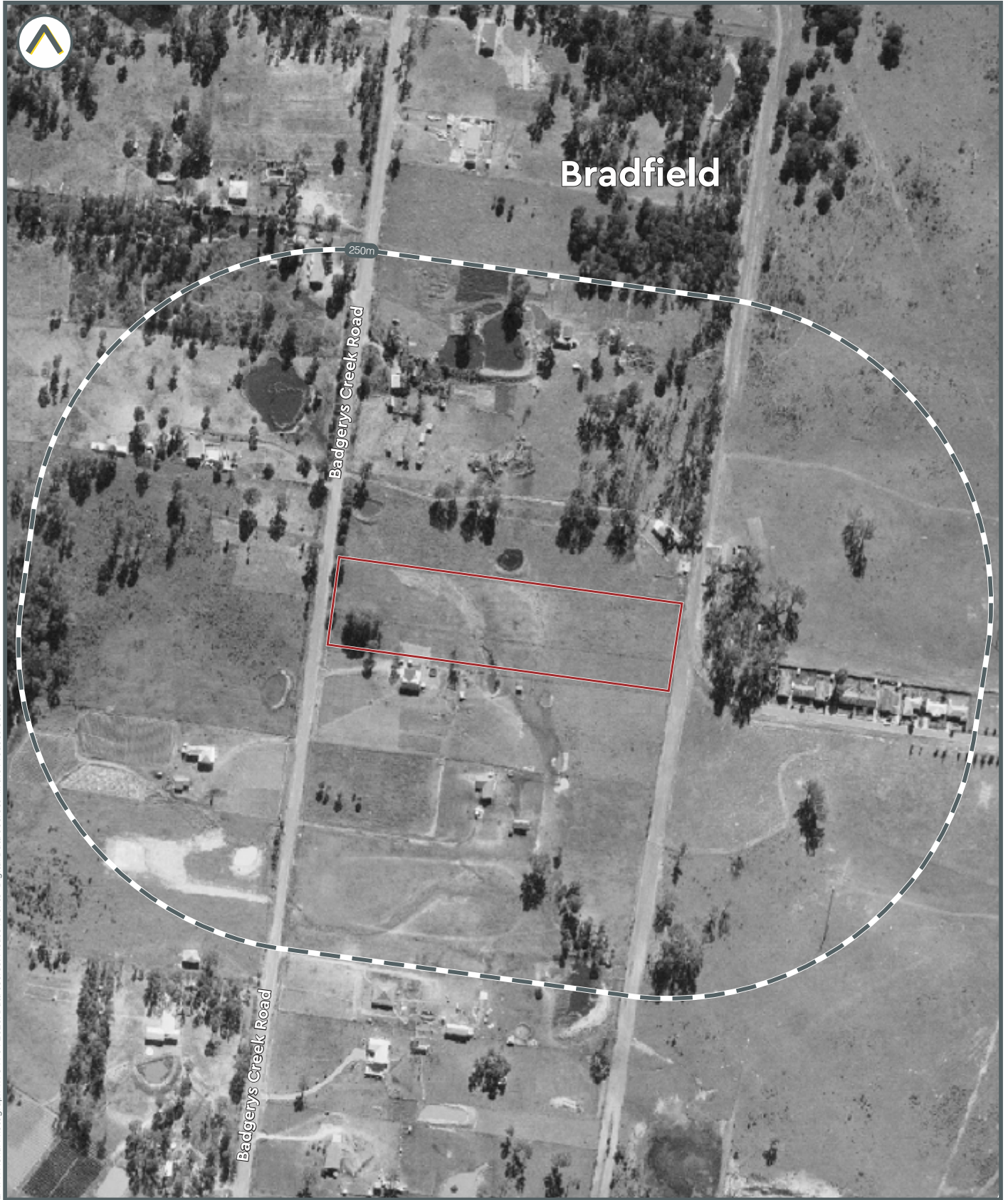
LI-4711 Aerial Photograph, 1975: 14. 04. 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 1978



LI-4711 Aerial Photograph, 1978, 14.04.2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 1986



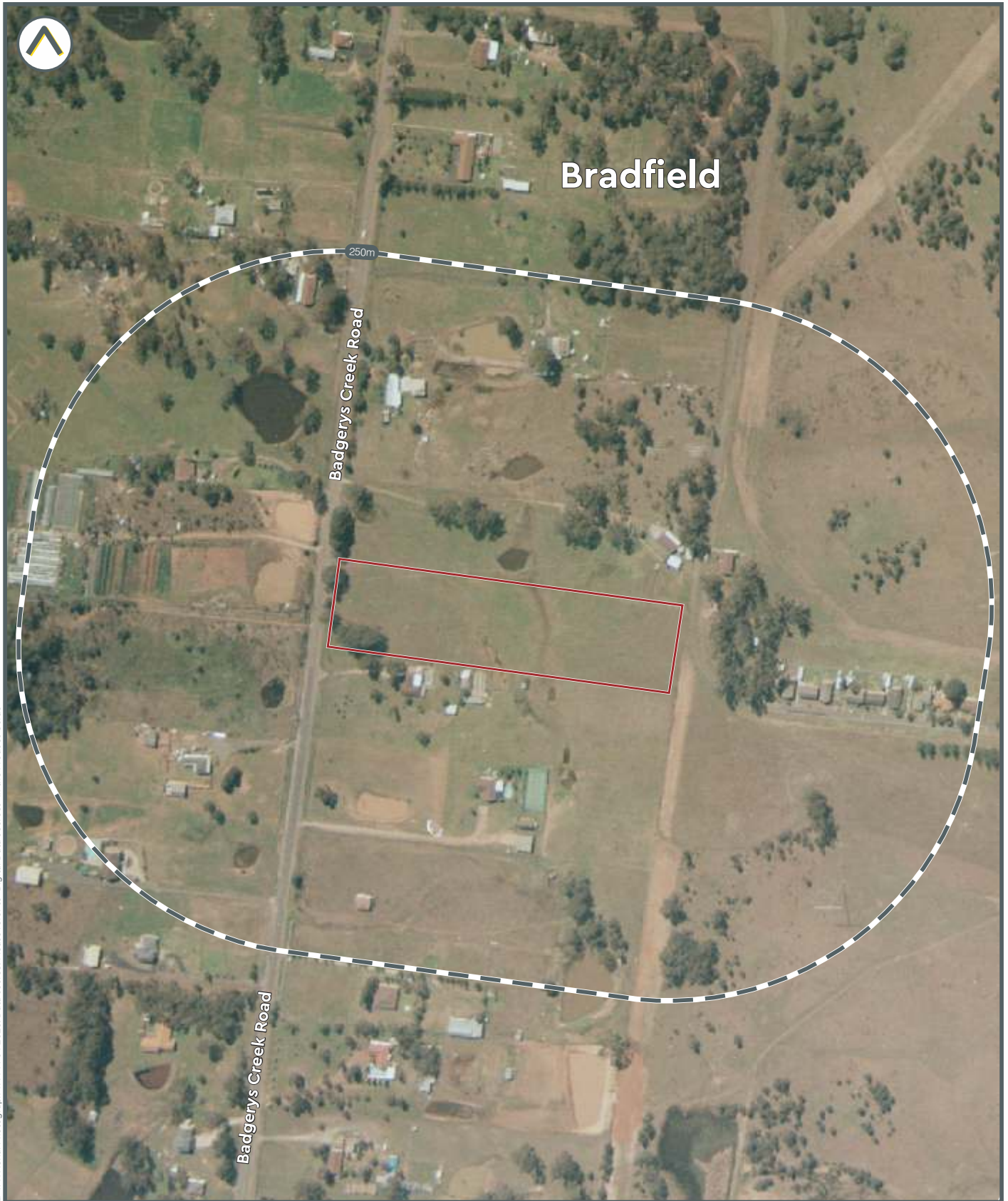
LI-4711 Aerial Photograph, 1978, 14, 04, 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 1991



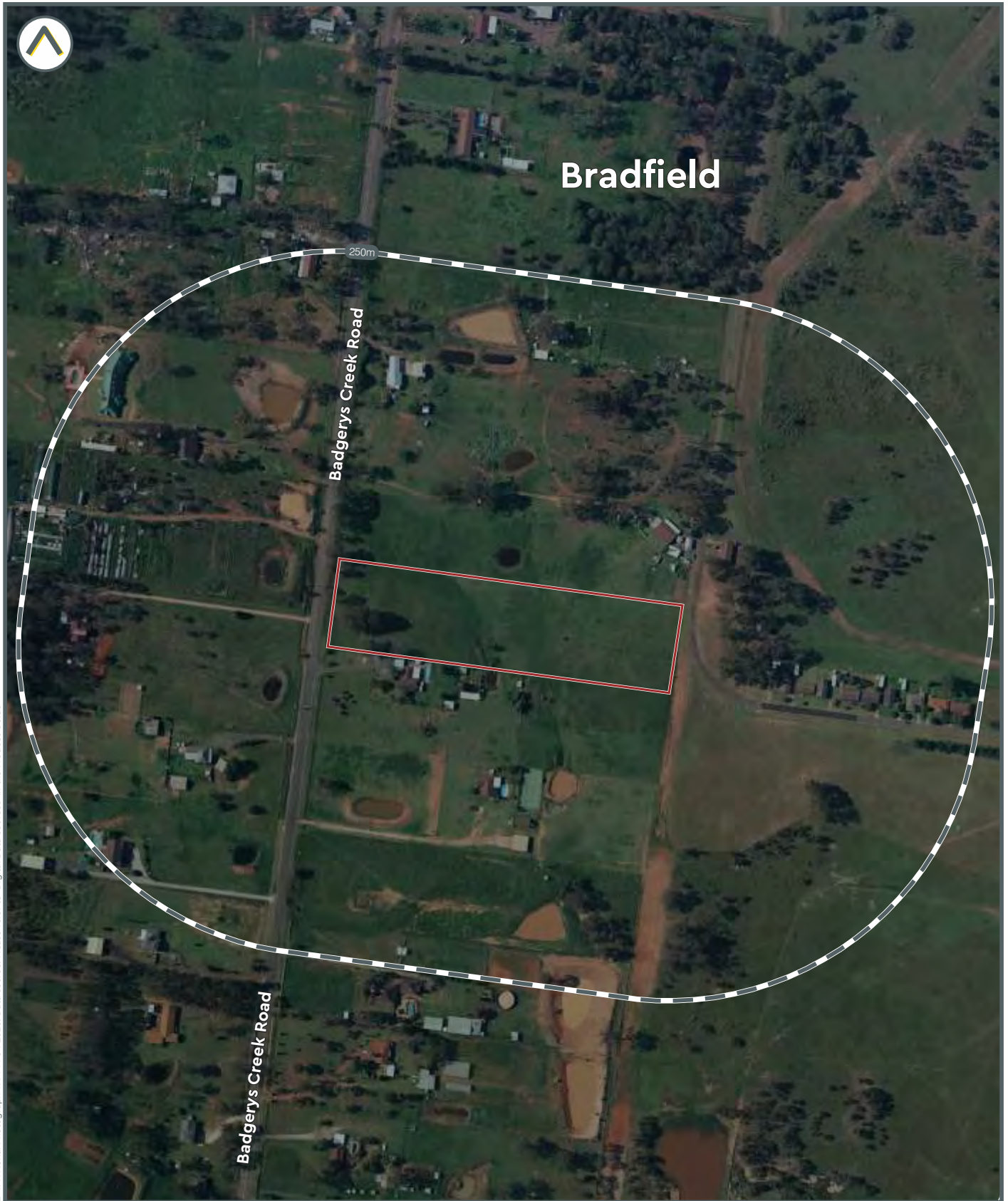
LI-4711 Aerial Photograph 1991.14.04.2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 1995

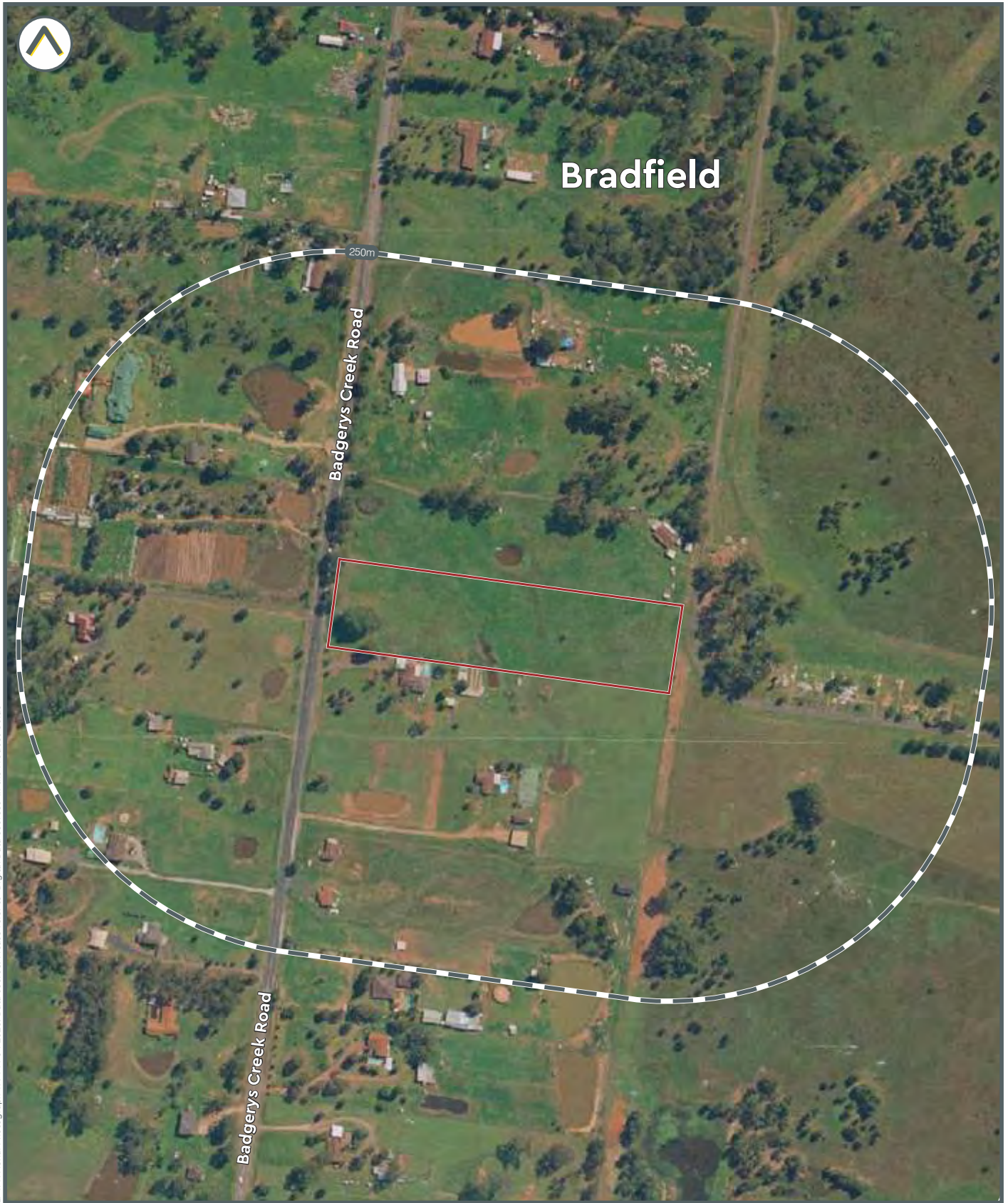


LI-4711 Aerial Photograph 1994, 14, 04, 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m

Historic Aerial Photograph - 1998



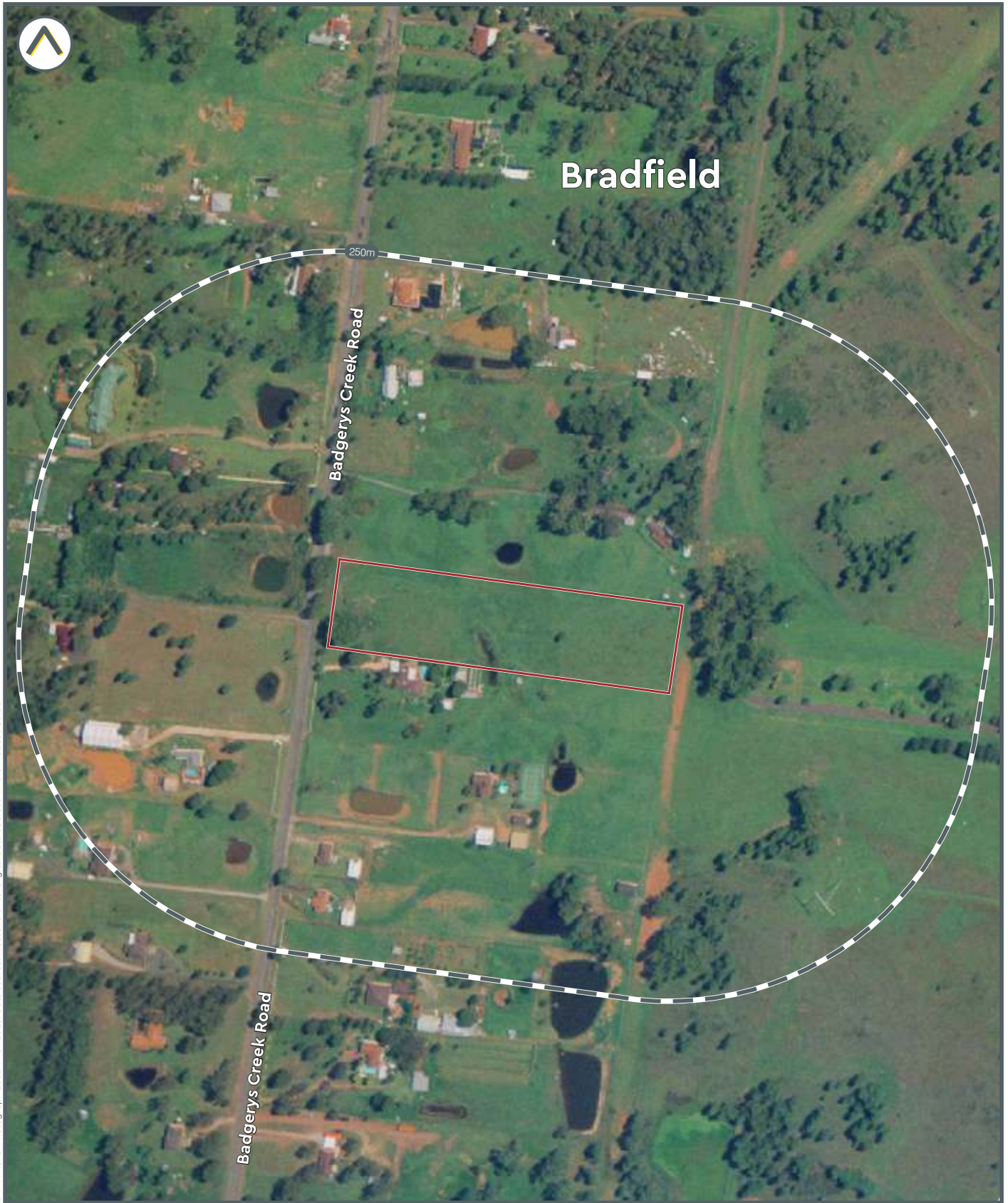
LI-4711 Aerial Photograph, 1998, 14.04.2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 2002



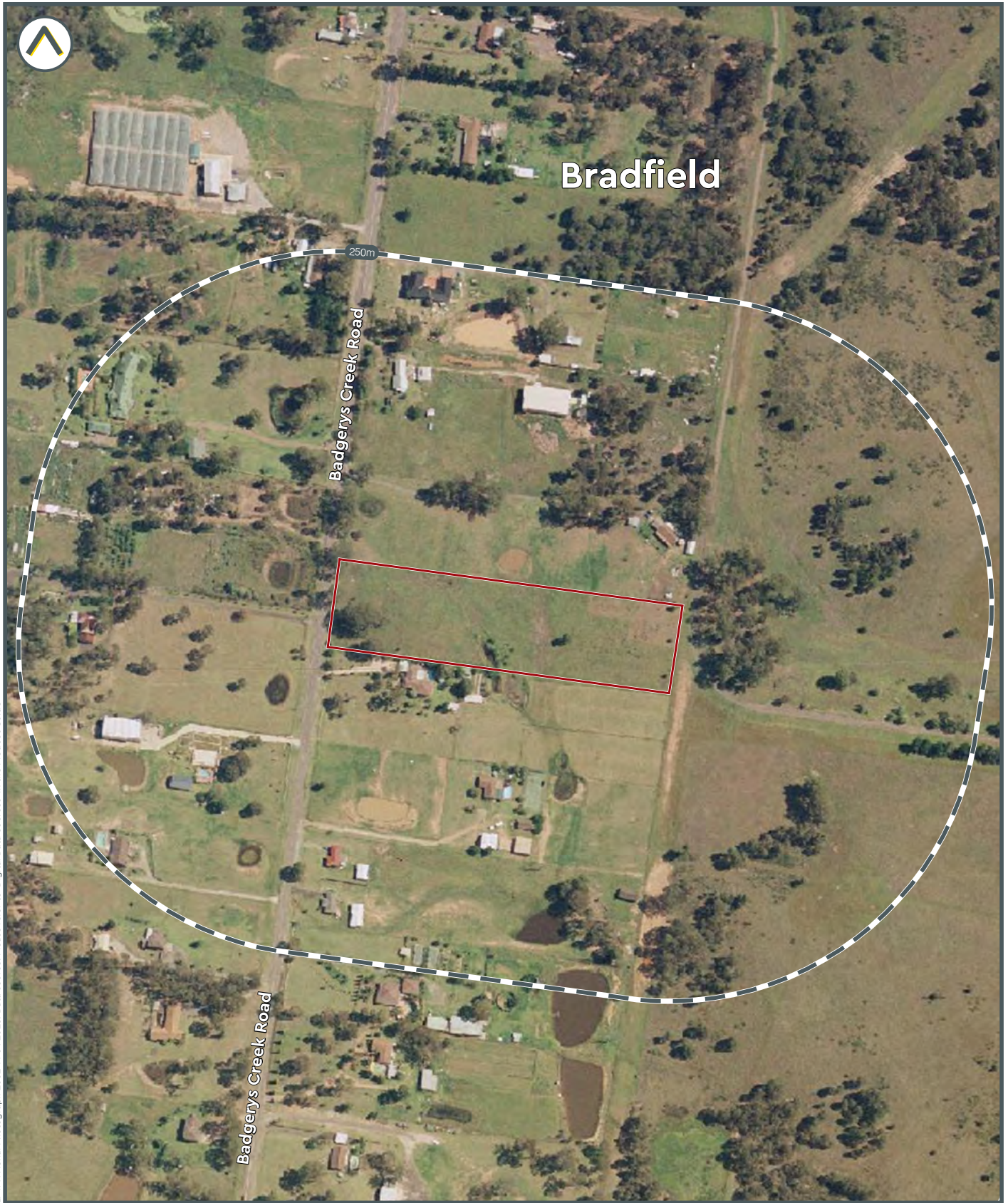
LI-4711 Aerial Photograph, 2002, 14, 04, 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 2005



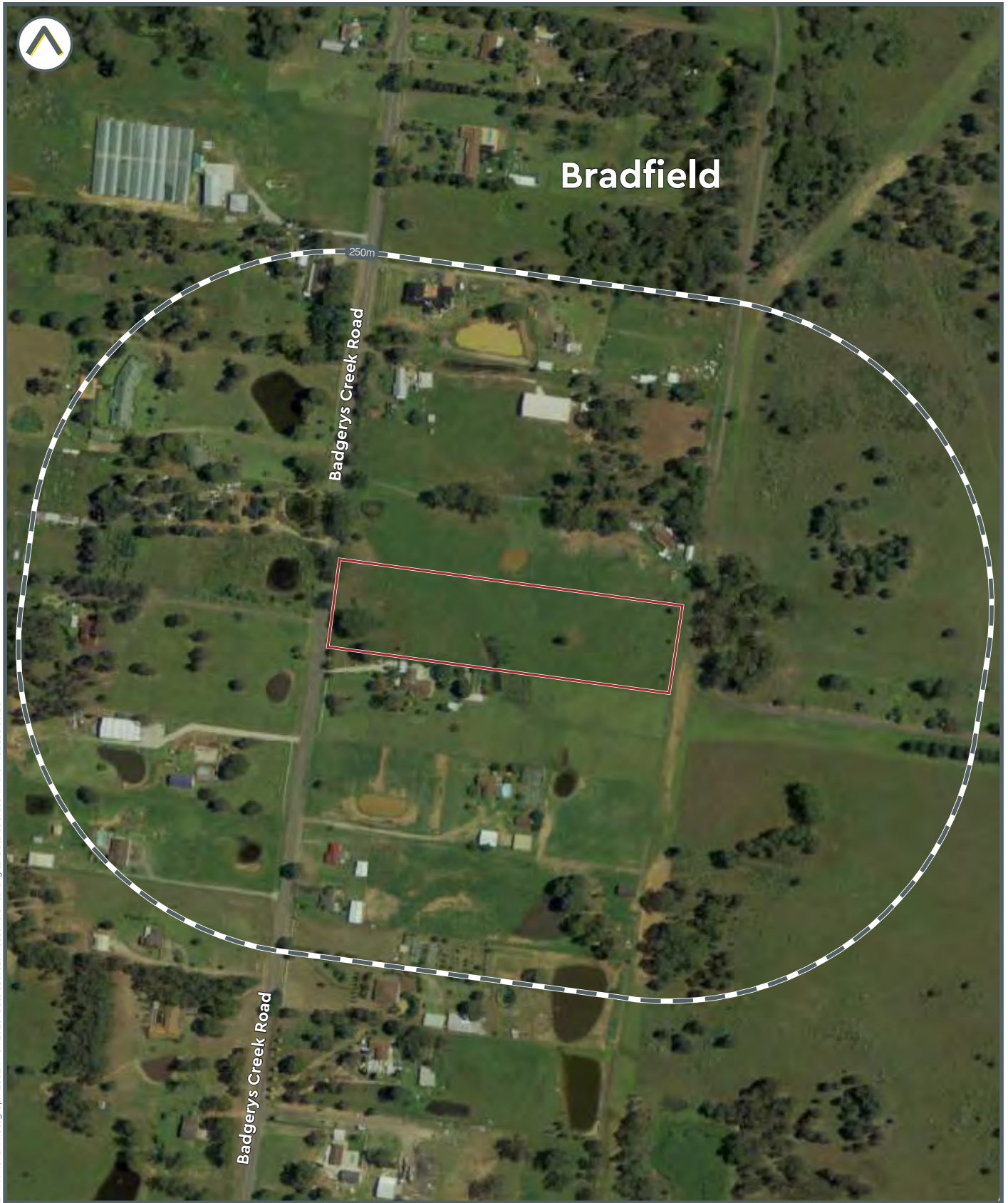
LI-4711 Aerial Photograph, 2002, 14, 04 2025, Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 2008



LI-4711 Aerial Photograph, 2002, 14, 04, 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 2010



LI-4711 Aerial Photograph, 2010, 14, 04, 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide



Historic Aerial Photograph - 2013



LI-4711 Aerial Photograph, 2010, 14, 04, 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

 Subject area

0 150m



Historic Aerial Photograph - 2016



LI-4711 Aerial Photograph, 2010, 14, 04, 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area



Historic Aerial Photograph - 2019



LI-4711 Aerial Photograph, 2019, 14.04.2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area



Historic Aerial Photograph - 2022



LI-4711 Aerial Photograph 2019 14.04.2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



Historic Aerial Photograph - 2025



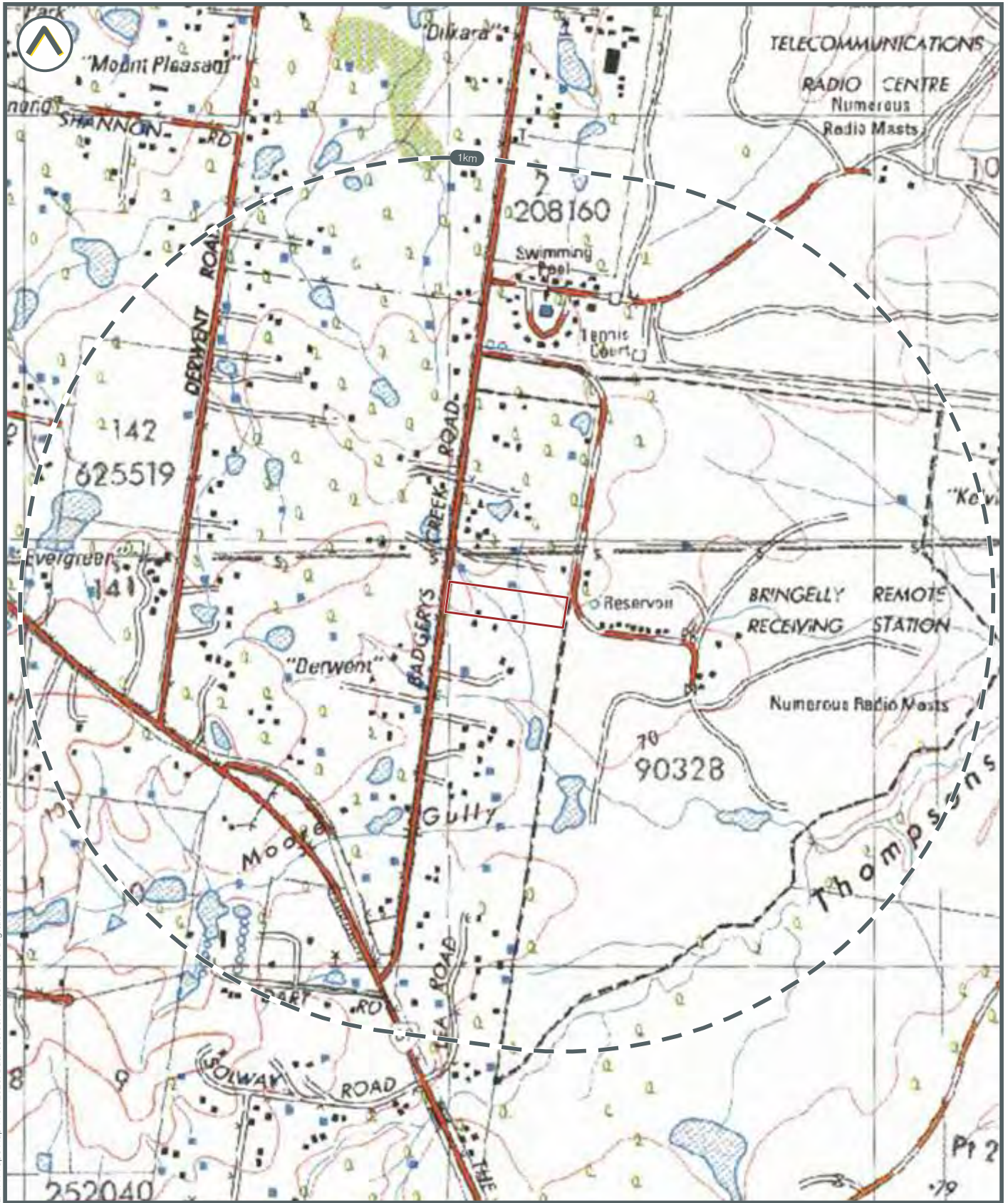
LI-4711 Aerial Photograph 2025.14.04.2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 150m



1969-1991 1:25,000 Topographic Map (Warragamba 9030-3S)



LI-4711 Topo Map 14, 04, 2025. Data source: Please refer to 'Digital Data Sources' in the Product Guide



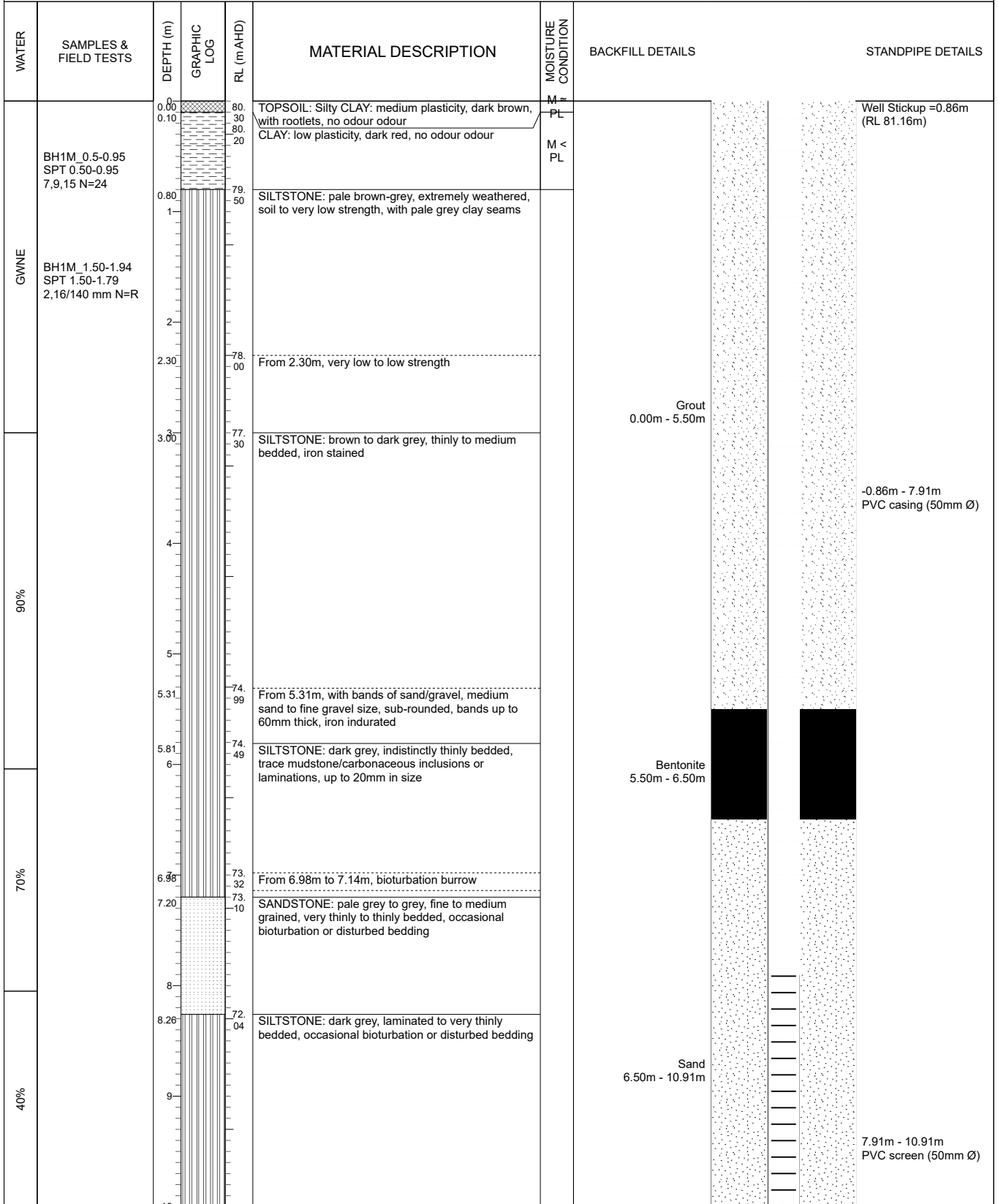
Appendix G – Borehole Logs



MONITORING WELL LOG

BH ID: BH1M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	23 April 2025
Client	Creative Vision	Completed	23 April 2025
Job No.	E26733.G03	Logged By	GB Date 23 April 2025
Sheets	1 of 2	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈80.30 m (AHD)
		Northing	6244091.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90°
		Easting	290122.0000 (MGA 2020 Zone 56)



This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH1M

Location 135 Badgerys Creek Road, Bradfield NSW	Started 23 April 2025
Client Creative Vision	Completed 23 April 2025
Job No. E26733.G03	Logged By GB Date 23 April 2025
Sheets 2 of 2	Review By JB Date 23 June 2025

Drilling Contractor Geosense Drilling Engineers	Surface RL ≈80.30 m (AHD)	Northing 6244091.0000 (MGA 2020 Zone 56)
Plant Comacchio Geo 205	Inclination 90°	Easting 290122.0000 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (m(AHD))	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
40%		11	69.39		SILTSTONE: dark grey, laminated to very thinly bedded, occasional bioturbation or disturbed bedding			
		12			Terminated at 10.91m. Target depth reached.			
		13						
		14						
		15						
		16						
		17						
		18						
		19						
		20						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

CORE PHOTOGRAPH OF BOREHOLE: BH1M

Project	Proposed Mixed-use Development	East	290122	Depth Range	3.00m to 10.91m BEGL	
Location	135 Badgerys Creek Road, Bradfield NSW	North	6244091	Contractor	Geosense Drilling Engineers Pty Ltd	
Position	See Figure 2	Surface RL	≈ 80.3m	Drill Rig	Comacchio GEO 205	
Job No.	E26733.G03	Inclination	-90°	Logged	GB	Date 23 / 04 / 2025
Client	Creative Vision	Box	1-2 of 2	Checked	JB	Date 23 / 06 / 2025





BOREHOLE LOG

BH ID: BH2M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	23 April 2025
Client	Creative Vision	Completed	24 April 2025
Job No.	E26733.G03	Logged By	GB Date 24 April 2025
Sheets	1 of 3	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈79.70 m (AHD) Northing 6244031.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290135.0000 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH2M_0.50-0.95 SPT 0.50-0.95 5,7,12 N=19	█	0.00	[Pattern]	79.70	TOPSOIL: Silty CLAY: medium plasticity, dark brown, with rootlets, no odour odour	M ≈ PL	-	TOPSOIL
			█	0.15	[Pattern]	79.55	CLAY: low plasticity, dark red, trace rootlets, no odour odour			RESIDUAL SOIL
		BH2M_1.50-1.86 SPT 1.50-1.86 8,16,10/60 mm N=R	█	0.60	[Pattern]	79.10	From 0.60m, pale grey mottled dark red	M < PL	VSt	
			█	1.70	[Pattern]	78.00	SILTSTONE: brown-grey to dark grey and dark red, extremely weathered, soil to very low strength			BEDROCK
				2.50	[Pattern]	77.20	Log continued on next page.			

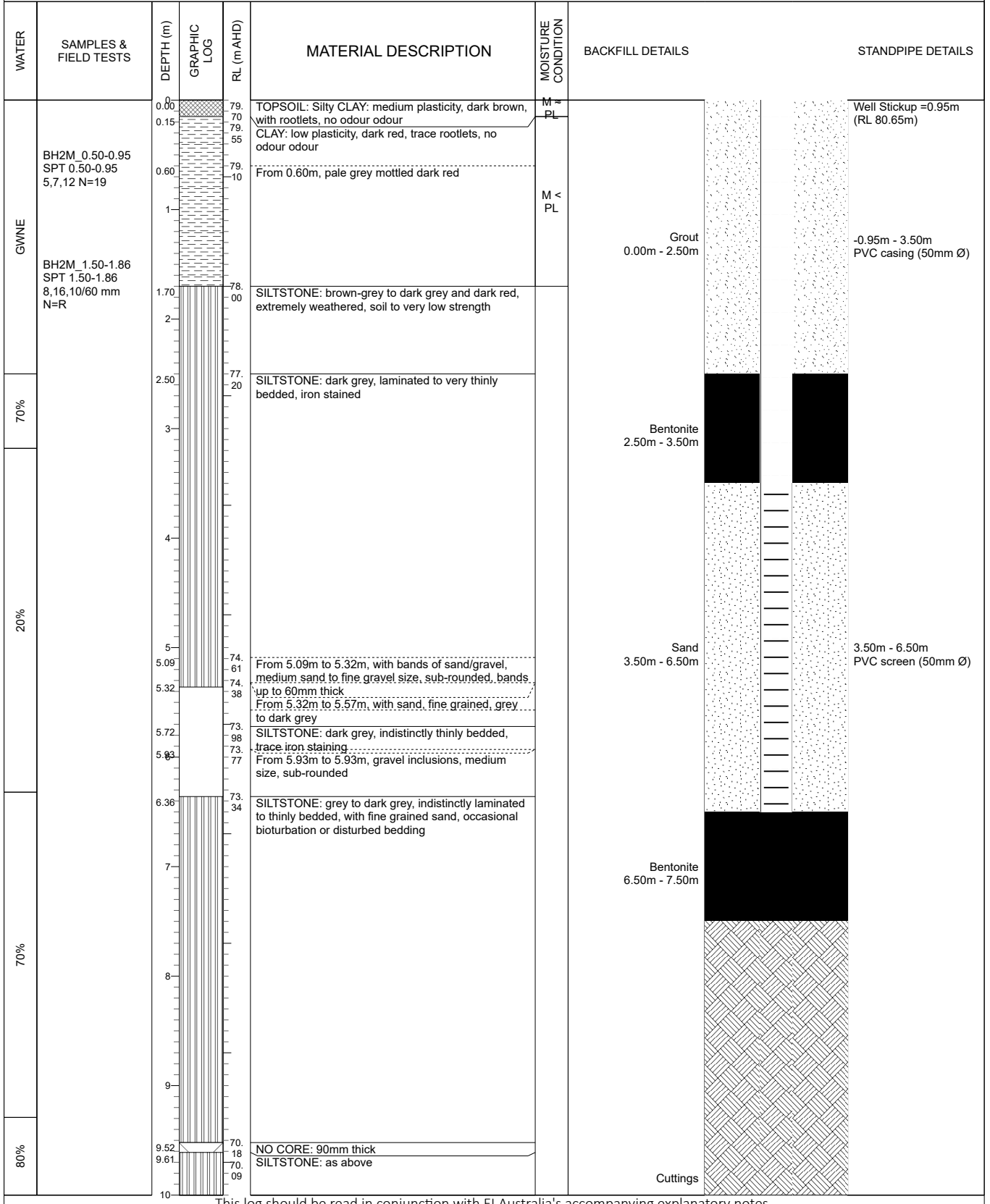
This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH2M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	23 April 2025
Client	Creative Vision	Completed	24 April 2025
Job No.	E26733.G03	Logged By	GB Date 24 April 2025
Sheets	1 of 2	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈79.70 m (AHD) Northing 6244031.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290135.0000 (MGA 2020 Zone 56)



This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH2M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	23 April 2025
Client	Creative Vision	Completed	24 April 2025
Job No.	E26733.G03	Logged By	GB Date 24 April 2025
Sheets	2 of 2	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈79.70 m (AHD) Northing 6244031.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290135.0000 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
80%		11		68.63	SILTSTONE: as above			
		11.07		68.63	From 11.07m to 11.07m, gravel inclusions, medium size, rounded			
		11.78		67.92	From 11.78m to 11.83m, gravel inclusions, medium size, rounded			
		12		67.51	Terminated at 12.19m. Target depth reached.			
		13						
		14						
		15						
		16						
		17						
		18						
		19						
		20						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

CORE PHOTOGRAPH OF BOREHOLE: BH2M

Project	Proposed Mixed-use Development	East	290135	Depth Range	2.5m to 12.19m BEGL
Location	135 Badgerys Creek Road, Bradfield NSW	North	6244031	Contractor	Geosense Drilling Engineers Pty Ltd
Position	See Figure 2	Surface RL	≈ 79.7m	Drill Rig	Comacchio GEO 205
Job No.	E26733.G03	Inclination	-90°	Logged	GB Date 24 / 04 / 2025
Client	Creative Vision	Box	1-3 of 3	Checked	JB Date 23 / 06 / 2025





BOREHOLE LOG

BH ID: BH3M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	24 April 2025
Client	Creative Vision	Completed	28 April 2025
Job No.	E26733.G03	Logged By	GB Date 28 April 2025
Sheets	1 of 4	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈76.80 m (AHD) Northing 6244042.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290213.0000 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH3M_0.50-0.95 SPT 0.50-0.95 3,3,6 N=9		0.00		76.80	TOPSOIL: Silty CLAY: low to medium plasticity, dark brown, with rootlets, no odour odour	M = PL	-	TOPSOIL
		BH3M_1.50-1.95 SPT 1.50-1.95 2,3,4 N=7		0.70		76.10	CLAY: low to medium plasticity, dark red mottled grey, trace rootlets, no odour odour	M < PL	F - St	RESIDUAL SOIL
				1.20		75.60	CLAY: low plasticity, red-brown, trace sand/gravel, medium sand to fine gravel size, rounded, trace rootlets, occasional charcoal pieces, fine to medium size, no odour odour			
				1.85		74.95	CLAY: low plasticity, pale grey mottled pale yellow-brown, trace iron indurated nodules, fine to medium gravel size, dark red, no odour odour			
			2.50		74.30	SILTSTONE: grey to pale brown, extremely weathered, soil to very low strength		BEDROCK		
		BH3M_3.00-3.05 SPT 3.00-3.05 10/50 mm N=R		3.00		73.78	<i>Log continued on next page.</i>			

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE CORE LOG

BH ID: BH3M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	24 April 2025
Client	Creative Vision	Completed	28 April 2025
Job No.	E26733.G03	Logged By	GB Date 28 April 2025
Sheets	3 of 4	Review By	JB Date 23 June 2025

Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈76.80 m (AHD)	Northing	6244042.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90°	Easting	290213.0000 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50)						DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING			
									VL ₀₋₁	L ₀₋₃	M ₁	H ₃	VH ₁₀	EH		30	100	300	1000
NMLC	90%	95	92	11.10		65.80	SANDSTONE: grey, fine to medium grained, laminated to thinly bedded, occasional bioturbation or disturbed bedding	FR	▼						10.19: DB				
				11.76		SILTSTONE: dark grey, laminated to very thinly bedded, with fine grained sand, trace gravel inclusions, fine to medium size, rounded	11.07: DB												
				12.00		From 11.76m, with bands of increased sand content, up to 220mm thick, and occasional bioturbation or disturbed bedding	11.19: BP 0-10° CU RO CL												
NMLC	80%	100	88	12.97		63.83	NO CORE: 130mm thick	FR	▼						12.81: BP 0-10° UN RO CL VN				
				13.10		SILTSTONE: grey to dark grey, laminated to thickly bedded with fine grained sandy SILSTONE beds, beds up to 300mm thick, occasional bioturbation or disturbed bedding	12.95: DB												
				14.00			13.19: BP 10° PR SM GC VN												
NMLC	30%	100	89	17.00		63.70		FR	▼						13.25: DB				
				17.50			13.39: JT 60-90° IR SM GC Infilled												
				18.00			13.71: HB												
NMLC	10%	100	80	19.00				FR	▼						13.96: HB				
				19.50			14.10: HB												
				20.00			14.28: HB												
NMLC				20.00				FR	▼						14.35: BP 0° PR SM CL VN				
				20.50			14.46: HB												
				21.00			14.57: BP 0-10° PR RO COAL VN												
NMLC				21.50				FR	▼						14.73-14.75: XWS 0° PR SM CL Infilled				
				22.00			15.08: JT 40° PR RO GC Infilled												
				22.50			15.62: HB												
NMLC				23.00				FR	▼						15.85: DB				
				23.50			15.88: DB												
				24.00			16.02: HB												
NMLC				24.50				FR	▼						16.08-16.15: JT 60-80° IR SM GC Infilled				
				25.00			16.26: DB												
				25.50			16.86: HB												
NMLC				26.00				FR	▼						16.95: HB				
				26.50			16.98: HB												
				27.00			17.07-17.34: JT 80-90° PR RO CL												
NMLC				27.50				FR	▼						17.63: DB				
				28.00			17.97-18.08: JT 80-90° PR RO CL												
				28.50			18.08: BP 0° PR RO CL VN												
NMLC				29.00				FR	▼						18.19: HB				
				29.50			18.28: HB												
				30.00			18.86: HB												
NMLC				30.50				FR	▼						18.95: HB				
				31.00			19.01: HB												
				31.50			19.10: DB												
NMLC				32.00				FR	▼						19.29: DB				
				32.50			19.51: BP 0-10° PR SM CL VN												
				33.00			19.53: DB												

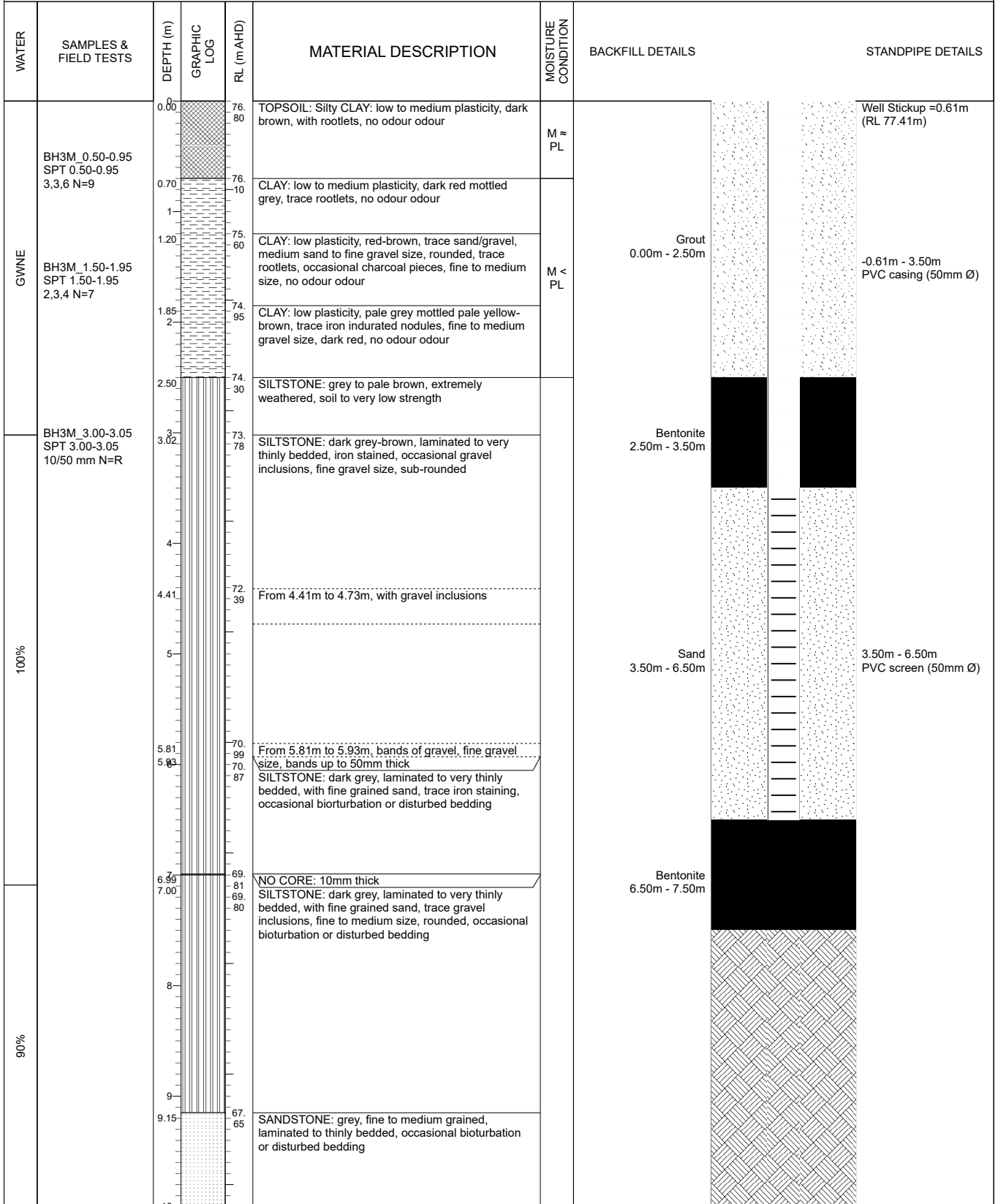
This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH3M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	24 April 2025
Client	Creative Vision	Completed	28 April 2025
Job No.	E26733.G03	Logged By	GB Date 28 April 2025
Sheets	1 of 3	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈76.80 m (AHD)
Plant	Comacchio Geo 205	Inclination	90°
		Northing	6244042.0000 (MGA 2020 Zone 56)
		Easting	290213.0000 (MGA 2020 Zone 56)



This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH3M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	24 April 2025
Client	Creative Vision	Completed	28 April 2025
Job No.	E26733.G03	Logged By	GB Date 28 April 2025
Sheets	2 of 3	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈76.80 m (AHD) Northing 6244042.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290213.0000 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
90%		11.00		65.80	SANDSTONE: grey, fine to medium grained, laminated to thinly bedded, occasional bioturbation or disturbed bedding			
		11.76		65.04	SILTSTONE: dark grey, laminated to very thinly bedded, with fine grained sand, trace gravel inclusions, fine to medium size, rounded			
		12.00			From 11.76m, with bands of increased sand content, up to 220mm thick, and occasional bioturbation or disturbed bedding			
		12.97		63.83	NO CORE: 130mm thick			
80%		13.10		63.70	SILTSTONE: grey to dark grey, laminated to thickly bedded with fine grained sandy SILSTONE beds, beds up to 300mm thick, occasional bioturbation or disturbed bedding			
30%		14.00						
		15.00					Cuttings 7.50m - 21.97m	
10%		16.00						
		17.00						
		18.00						
		19.00						
		20.00						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH3M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	24 April 2025
Client	Creative Vision	Completed	28 April 2025
Job No.	E26733.G03	Logged By	GB Date 28 April 2025
Sheets	3 of 3	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈76.80 m (AHD) Northing 6244042.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290213.0000 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
10%		21		54.83	SILTSTONE: grey to dark grey, laminated to thickly bedded with fine grained sandy SILTSTONE beds, beds up to 300mm thick, occasional bioturbation or disturbed bedding			
		22			Terminated at 21.97m. Target depth reached.			
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

Project	Proposed Mixed-use Development	East	290213	Depth Range	3.02m to 12.00m BEGL	
Location	135 Badgerys Creek Road, Bradfield NSW	North	6244042	Contractor	Geosense Drilling Engineers Pty Ltd	
Position	See Figure 2	Surface RL	≈ 76.8m	Drill Rig	Comacchio GEO 205	
Job No.	E26733.G03	Inclination	-90°	Logged	GB	Date 28 / 04 / 2025
Client	Creative Vision	Box	1-2 of 4	Checked	JB	Date 23 / 06 / 2025



Project	Proposed Mixed-use Development	East	290213	Depth Range	12.00m to 21.97m BEGL
Location	135 Badgerys Creek Road, Bradfield NSW	North	6244042	Contractor	Geosense Drilling Engineers Pty Ltd
Position	See Figure 2	Surface RL	≈ 76.8m	Drill Rig	Comacchio GEO 205
Job No.	E26733.G03	Inclination	-90°	Logged	GB Date 28 / 04 / 2025
Client	Creative Vision	Box	3-4 of 4	Checked	JB Date 23 / 06 / 2025





BOREHOLE LOG

BH ID: BH4

Location	135 Badgerys Creek Road, Bradfield NSW	Started	29 April 2025
Client	Creative Vision	Completed	29 April 2025
Job No.	E26733.G03	Logged By	JO Date 29 April 2025
Sheets	1 of 3	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈77.10 m (AHD) Northing 6244062.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290287.0000 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH4_0.50-0.95 SPT 0.50-0.95 3,9,14 N=23	[Sample Recovery Bar]	0.00	[Graphic Log Pattern]	77.10	TOPSOIL: SAND: fine to medium grained, dark brown, trace sub-angular to sub-rounded gravels with rootlets	M	-	TOPSOIL
		BH4_1.50-1.95 SPT 1.50-1.95 4,7,10 N=17	[Sample Recovery Bar]	0.65	[Graphic Log Pattern]	76.45	CLAY: low plasticity, dark red	M < PL	VSt	RESIDUAL SOIL
		BH4_3.00-3.01 SPT 3.00-3.01 4/10 mm N=R	[Sample Recovery Bar]	3.50	[Graphic Log Pattern]	73.60				
							<i>Log continued on next page.</i>			
				4						
				5						
				6						
				7						
				8						
				9						
				10						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.



BOREHOLE CORE LOG

BH ID: BH4

Location	135 Badgerys Creek Road, Bradfield NSW	Started	29 April 2025
Client	Creative Vision	Completed	29 April 2025
Job No.	E26733.G03	Logged By	JO Date 29 April 2025
Sheets	3 of 3	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈77.10 m (AHD) Northing 6244062.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290287.0000 (MGA 2020 Zone 56)

METHOD	Flush Return	TCR %	RQD %	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	WEATHERING	ESTIMATED STRENGTH Is(50)		DISCONTINUITIES & ADDITIONAL DATA	FRACTURE SPACING								
									▼ - Axial	▽ - Diametral		30	100	300	1000	3000				
	90%	100	100	11			From 9.34m, trace pebble or mudstone inclusions, up to 20mm in size	SW	VL ₀₋₁	L ₀₋₃	M ₁	H ₃	VH ₁₀	EH						
				12		64.99	Terminated at 12.11m. Target Depth Reached.													
				13																
				14																
				15																
				16																
				17																
				18																
				19																
				20																

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

Project	Proposed Mixed-use Development	East	290287	Depth Range	3.5m to 12.11m BEGL
Location	135 Badgerys Creek Road, Bradfield NSW	North	6244062	Contractor	Geosense Drilling Engineers Pty Ltd
Position	See Figure 2	Surface RL	≈ 77.1m	Drill Rig	Comacchio GEO 205
Job No.	E26733.G03	Inclination	-90°	Logged	JO Date 29 / 04 / 2025
Client	Creative Vision	Box	1-3 of 3	Checked	JB Date 23 / 06 / 2025





BOREHOLE LOG

BH ID: BH5M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	29 April 2025
Client	Creative Vision	Completed	30 April 2025
Job No.	E26733.G03	Logged By	JO Date 30 April 2025
Sheets	1 of 3	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈80.70 m (AHD) Northing 6244051.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290372.0000 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T	GWNE	BH5M_0.50-0.95 SPT 0.50-0.95 5,5,7 N=12	[Sample Recovery Bar]	0.00 0.10	[Graphic Log]	80.70 80.60	TOPSOIL: Silty CLAY: medium plasticity, dark brown with rootlets Silty CLAY: medium plasticity, orange-brown	M > PL	-	TOPSOIL RESIDUAL SOIL
		BH5M_1.50-1.95 SPT 1.50-1.95 3,7,12 N=19	[Sample Recovery Bar]	1.50	[Graphic Log]	79.20	From 1.50m, pale grey-orange	M = PL	St	
		BH5M_3.00-3.18 SPT 3.00-3.18 14,6/30 mm HB N=R	[Sample Recovery Bar]	3.20	[Graphic Log]	77.50			VSt	
							Log continued on next page.			

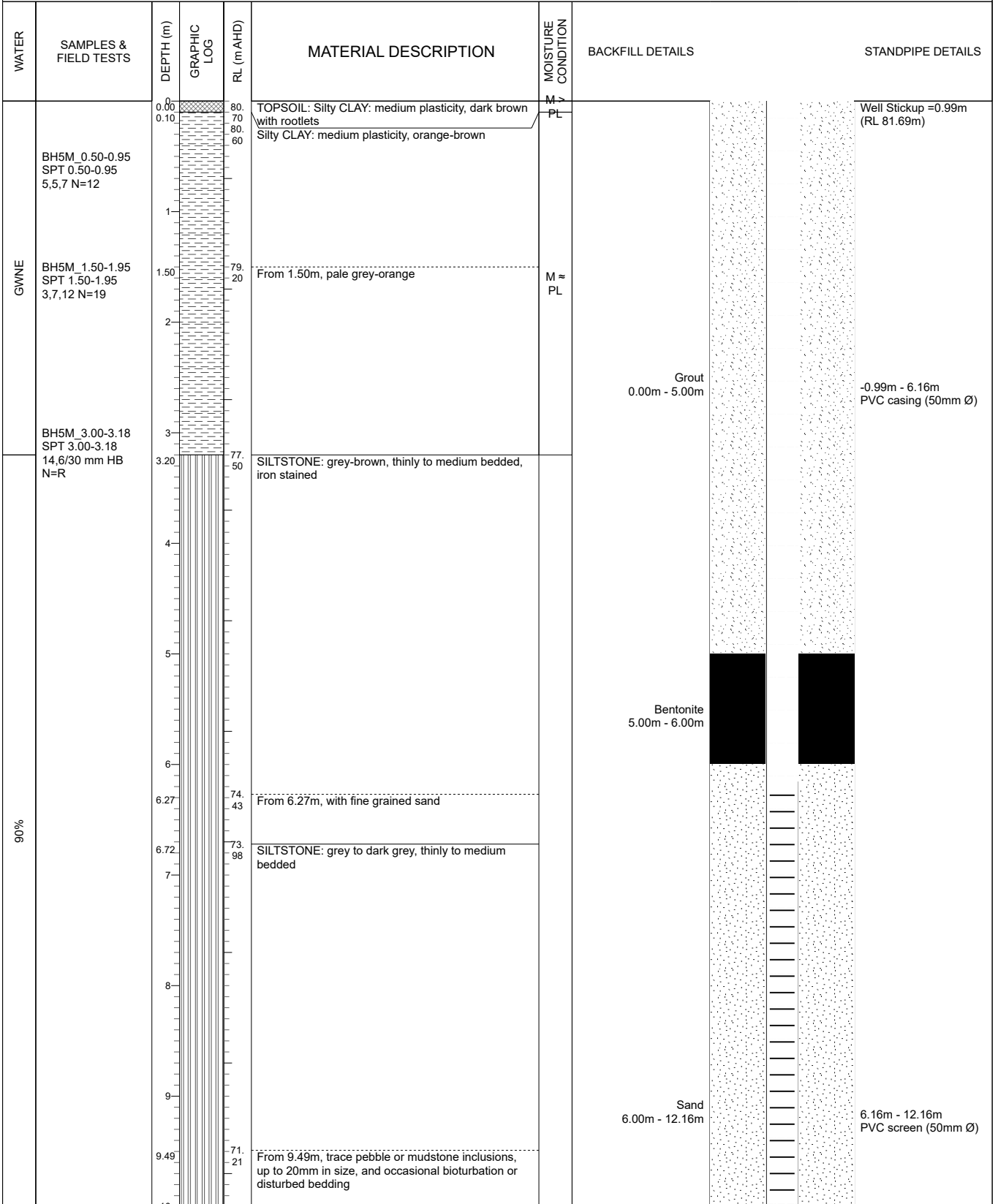
This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH5M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	29 April 2025
Client	Creative Vision	Completed	30 April 2025
Job No.	E26733.G03	Logged By	JO Date 30 April 2025
Sheets	1 of 2	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈80.70 m (AHD) Northing 6244051.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290372.0000 (MGA 2020 Zone 56)



This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH5M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	29 April 2025
Client	Creative Vision	Completed	30 April 2025
Job No.	E26733.G03	Logged By	JO Date 30 April 2025
Sheets	2 of 2	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈80.70 m (AHD) Northing 6244051.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290372.0000 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
90%		11 12 13 14 15 16 17 18 19 20		68.54	From 9.49m, trace pebble or mudstone inclusions, up to 20mm in size, and occasional bioturbation or disturbed bedding Terminated at 12.16m. Target Depth Reached.			

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

CORE PHOTOGRAPH OF BOREHOLE: BH5M

Project	Proposed Mixed-use Development	East	290372	Depth Range	3.2m to 12.16m BEGL
Location	135 Badgerys Creek Road, Bradfield NSW	North	6244051	Contractor	Geosense Drilling Engineers Pty Ltd
Position	See Figure 2	Surface RL	≈ 80.7m	Drill Rig	Comacchio GEO 205
Job No.	E26733.G03	Inclination	-90°	Logged	JO Date 30 / 04 / 2025
Client	Creative Vision	Box	1-3 of 3	Checked	JB Date 23 / 06 / 2025





BOREHOLE LOG

BH ID: BH6M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	30 April 2025
Client	Creative Vision	Completed	30 April 2025
Job No.	E26733.G03	Logged By	JO Date 30 April 2025
Sheets	1 of 3	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈78.70 m (AHD) Northing 6243994.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290363.0000 (MGA 2020 Zone 56)

METHOD	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	SAMPLE RECOVERY	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY / REL. DENSITY	MATERIAL ORIGIN & OBSERVATIONS
AD/T		BH6M_0.50-0.95 SPT 0.50-0.95 3,6,9 N=15		0.00 0.10		78.70 78.60	TOPSOIL: CLAY: low plasticity, dark brown trace rootlets CLAY: low to medium plasticity, orange-brown	M > PL	-	TOPSOIL RESIDUAL SOIL
		BH6M_1.50-1.95 SPT 1.50-1.95 5,9,24 HB N=33		1 2				M < PL	VSt	
		BH6M_3.00-3.10 SPT 3.00-3.10 13/100 mm HB N=R		3.00	3.00	75.70	<i>Log continued on next page.</i>			
				4 5 6 7 8 9 10						

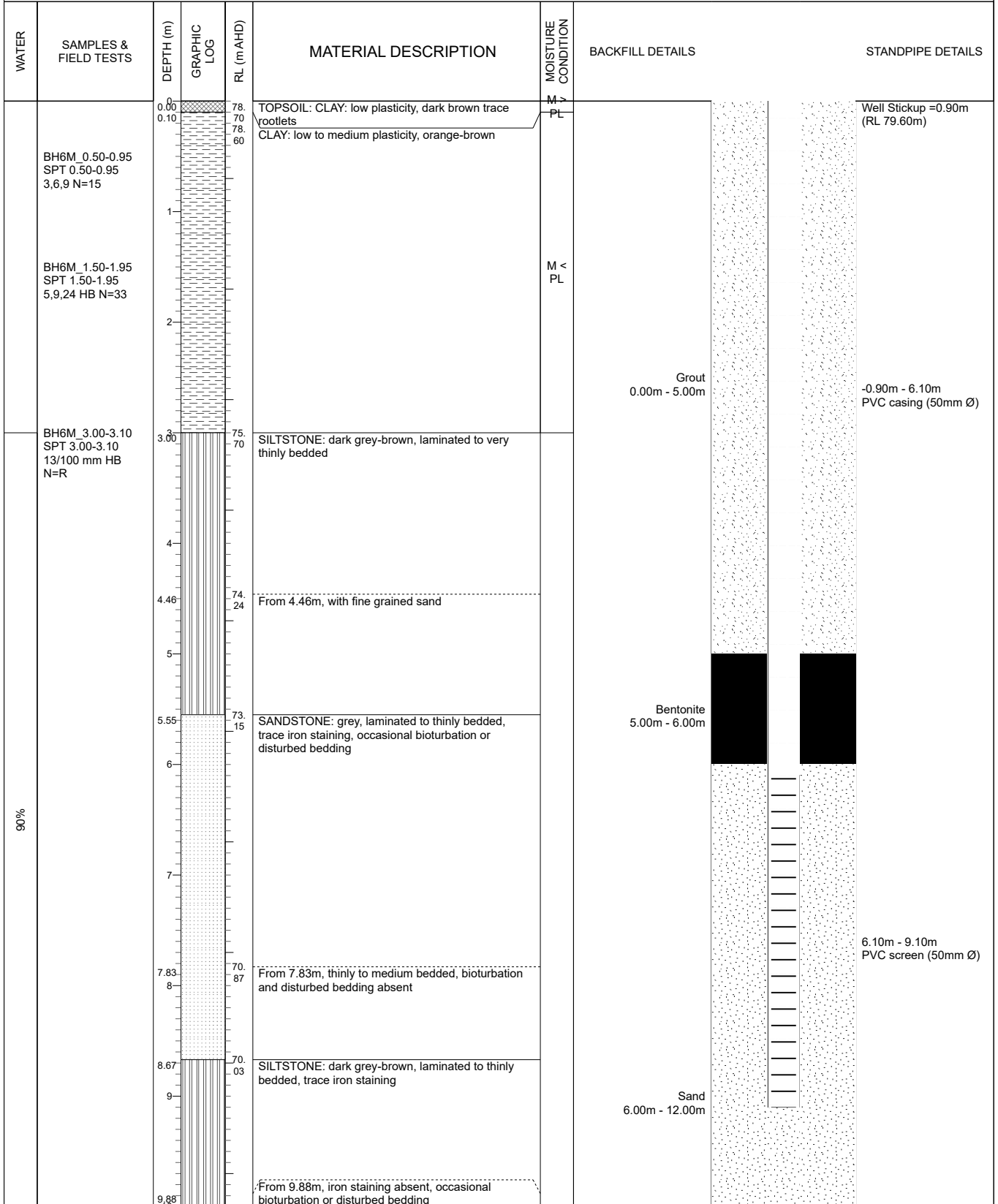
This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH6M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	30 April 2025
Client	Creative Vision	Completed	30 April 2025
Job No.	E26733.G03	Logged By	JO Date 30 April 2025
Sheets	1 of 2	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈78.70 m (AHD) Northing 6243994.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290363.0000 (MGA 2020 Zone 56)



This log should be read in conjunction with EI Australia's accompanying explanatory notes.



MONITORING WELL LOG

BH ID: BH6M

Location	135 Badgerys Creek Road, Bradfield NSW	Started	30 April 2025
Client	Creative Vision	Completed	30 April 2025
Job No.	E26733.G03	Logged By	JO Date 30 April 2025
Sheets	2 of 2	Review By	JB Date 23 June 2025
Drilling Contractor	Geosense Drilling Engineers	Surface RL	≈78.70 m (AHD) Northing 6243994.0000 (MGA 2020 Zone 56)
Plant	Comacchio Geo 205	Inclination	90° Easting 290363.0000 (MGA 2020 Zone 56)

WATER	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	RL (mAHD)	MATERIAL DESCRIPTION	MOISTURE CONDITION	BACKFILL DETAILS	STANDPIPE DETAILS
90%		11		68.82	From 9.88m, iron staining absent, occasional bioturbation or disturbed bedding			
		12		66.70	Terminated at 12.00m. Target Depth Reached.			
		13						
		14						
		15						
		16						
		17						
		18						
		19						
		20						

This log should be read in conjunction with EI Australia's accompanying explanatory notes.

CORE PHOTOGRAPH OF BOREHOLE: BH6M

Project	Proposed Mixed-use Development	East	290363	Depth Range	3.0m to 12.0m BEGL
Location	135 Badgerys Creek Road, Bradfield NSW	North	6243994	Contractor	Geosense Drilling Engineers Pty Ltd
Position	See Figure 2	Surface RL	≈ 78.7m	Drill Rig	Comacchio GEO 205
Job No.	E26733.G03	Inclination	-90°	Logged	JO Date 30 / 04 / 2025
Client	Creative Vision	Box	1-2 of 2	Checked	JB Date 23 / 06 / 2025



Appendix H – Laboratory COC, SRA, Analytical Reports and DQOs



SAMPLE RECEIPT ADVICE

SE282211

CLIENT DETAILS

Contact Jordan Goehner Drewe
Client EI AUSTRALIA
Address SUITE 6.01
55 MILLER STREET
PYRMONT NSW 2009

Telephone 61 2 95160722
Facsimile (Not specified)
Email jordan.goehner-drewe@eiaustralia.com.au

Project **E26733 135 Badgerys Creek rd Bradfield N**
Order Number **E26733**
Samples 12

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Thu 1/5/2025
Report Due Fri 9/5/2025
SGS Reference **SE282211**

SUBMISSION DETAILS

This is to confirm that 12 samples were received on Thursday 1/5/2025. Results are expected to be ready by COB Friday 9/5/2025. Please quote SGS reference SE282211 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	11 Soil, 1 Water	Type of documentation received	COC
Date documentation received	01/05/2025@05:55PM	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	9.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

1 water and 14 soil samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.
QT1 forwarded to Envirolab.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

CLIENT DETAILS

Client **EI AUSTRALIA**

Project **E26733 135 Badgerys Creek rd Bradfield N**

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH01_0.0-0.1	27	14	26	9	7	10	11	7
002	BH01_0.3-0.4	-	-	26	-	7	10	11	7
003	BH02_0.0-0.1	27	14	26	9	7	10	11	7
004	BH03_0.4-0.5	27	14	26	9	7	10	11	7
005	BH03_0.9-1.0	-	-	26	-	7	10	11	7
006	BH05_0.0-0.1	27	14	26	9	7	10	11	7
007	BH05_0.4-0.5	-	-	26	-	7	10	11	7
008	BH06_0.0-0.1	27	14	26	9	7	10	11	7
009	QD1	-	-	-	-	7	10	11	7
010	TS1	-	-	-	-	-	-	11	-
011	TB1	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.

CLIENT DETAILS

Client **EI AUSTRALIA**

Project **E26733 135 Badgerys Creek rd Bradfield N**

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH01_0.0-0.1	3	1	1
002	BH01_0.3-0.4	-	1	1
003	BH02_0.0-0.1	3	1	1
004	BH03_0.4-0.5	3	1	1
005	BH03_0.9-1.0	-	1	1
006	BH05_0.0-0.1	3	1	1
007	BH05_0.4-0.5	-	1	1
008	BH06_0.0-0.1	3	1	1
009	QD1	-	1	1
011	TB1	-	-	1

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.



SAMPLE RECEIPT ADVICE

SE282211

CLIENT DETAILS

Client **EI AUSTRALIA**

Project **E26733 135 Badgerys Creek rd Bradfield N**

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
012	QR1	1	7	9	11	7

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.

CLIENT DETAILS

LABORATORY DETAILS

Contact Jordan Goehner Drewe
 Client EI AUSTRALIA
 Address SUITE 6.01
 55 MILLER STREET
 PYRMONT NSW 2009

Manager Shane McDermott
 Laboratory SGS Alexandria Environmental
 Address Unit 16, 33 Maddox St
 Alexandria NSW 2015

Telephone 61 2 95160722
 Facsimile (Not specified)
 Email jordan.goehner-drewe@eiaustralia.com.au

Telephone +61 2 8594 0400
 Facsimile +61 2 8594 0499
 Email au.environmental.sydney@sgs.com

Project **E26733 135 Badgerys Creek rd Bradfield N**
 Order Number **E26733**
 Samples 12

SGS Reference **SE282211 R0**
 Date Received 1/5/2025
 Date Reported 13/5/2025


COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample #4,6: A portion of the sample supplied has been sub-sampled for asbestos analysis in soil according to SGS In-house procedures due to large volume. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Industries and Environment recommends supplying approximately 50-100g of sample in a separate container. Asbestos analysed by Approved Identifier Yusuf Kuthpudin

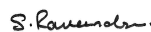
SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head



Ravee SIVASUBRAMANIAM
 Hygiene Team Leader



Shane MCDERMOTT
 Laboratory Manager



Teresa NGUYEN
 Organic Chemist

VOC's in Soil [AN433] Tested: 2/5/2025

PARAMETER	UOM	LOR	BH01_0.0-0.1	BH01_0.3-0.4	BH02_0.0-0.1	BH03_0.4-0.5	BH03_0.9-1.0
			SOIL	SOIL	SOIL	SOIL	SOIL
			23/4/2025 SE282211.001	23/4/2025 SE282211.002	23/4/2025 SE282211.003	24/4/2025 SE282211.004	24/4/2025 SE282211.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH05_0.0-0.1	BH05_0.4-0.5	BH06_0.0-0.1	QD1	TS1
			SOIL	SOIL	SOIL	SOIL	SOIL
			29/4/2025 SE282211.006	29/4/2025 SE282211.007	30/4/2025 SE282211.008	23/4/2025 SE282211.009	23/4/2025 SE282211.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[129%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[97%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[83%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	[85%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[84%]
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	-
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	-
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-

PARAMETER	UOM	LOR	TB1
			SOIL
			23/4/2025 SE282211.011
Benzene	mg/kg	0.1	<0.1
Toluene	mg/kg	0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2
o-xylene	mg/kg	0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 2/5/2025

PARAMETER	UOM	LOR	BH01_0.0-0.1	BH01_0.3-0.4	BH02_0.0-0.1	BH03_0.4-0.5	BH03_0.9-1.0
			SOIL	SOIL	SOIL	SOIL	SOIL
			23/4/2025 SE282211.001	23/4/2025 SE282211.002	23/4/2025 SE282211.003	24/4/2025 SE282211.004	24/4/2025 SE282211.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH05_0.0-0.1	BH05_0.4-0.5	BH06_0.0-0.1	QD1
			SOIL	SOIL	SOIL	SOIL
			29/4/2025 SE282211.006	29/4/2025 SE282211.007	30/4/2025 SE282211.008	23/4/2025 SE282211.009
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 2/5/2025

PARAMETER	UOM	LOR	BH01_0.0-0.1	BH01_0.3-0.4	BH02_0.0-0.1	BH03_0.4-0.5	BH03_0.9-1.0
			SOIL	SOIL	SOIL	SOIL	SOIL
			23/4/2025 SE282211.001	23/4/2025 SE282211.002	23/4/2025 SE282211.003	24/4/2025 SE282211.004	24/4/2025 SE282211.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	59	<45	110	<45	<45
TRH C29-C36	mg/kg	45	60	<45	150	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	110	<90	230	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	120	<110	260	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	230	<210	<210

PARAMETER	UOM	LOR	BH05_0.0-0.1	BH05_0.4-0.5	BH06_0.0-0.1	QD1
			SOIL	SOIL	SOIL	SOIL
			29/4/2025 SE282211.006	29/4/2025 SE282211.007	30/4/2025 SE282211.008	23/4/2025 SE282211.009
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 2/5/2025

PARAMETER	UOM	LOR	BH01_0.0-0.1	BH01_0.3-0.4	BH02_0.0-0.1	BH03_0.4-0.5	BH03_0.9-1.0
			SOIL	SOIL	SOIL	SOIL	SOIL
			23/4/2025 SE282211.001	23/4/2025 SE282211.002	23/4/2025 SE282211.003	24/4/2025 SE282211.004	24/4/2025 SE282211.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH05_0.0-0.1	BH05_0.4-0.5	BH06_0.0-0.1
			SOIL	SOIL	SOIL
			29/4/2025 SE282211.006	29/4/2025 SE282211.007	30/4/2025 SE282211.008
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8

OP Pesticides in Soil [AN420] Tested: 2/5/2025

PARAMETER	UOM	LOR	BH01_0.0-0.1	BH02_0.0-0.1	BH03_0.4-0.5	BH05_0.0-0.1	BH06_0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			23/4/2025 SE282211.001	23/4/2025 SE282211.003	24/4/2025 SE282211.004	29/4/2025 SE282211.006	30/4/2025 SE282211.008
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

OC Pesticides in Soil [AN420] Tested: 2/5/2025

PARAMETER	UOM	LOR	BH01_0.0-0.1	BH02_0.0-0.1	BH03_0.4-0.5	BH05_0.0-0.1	BH06_0.0-0.1
			SOIL	SOIL	SOIL	SOIL	SOIL
			23/4/2025 SE282211.001	23/4/2025 SE282211.003	24/4/2025 SE282211.004	29/4/2025 SE282211.006	30/4/2025 SE282211.008
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PCBs in Soil [AN420] Tested: 2/5/2025

PARAMETER	UOM	LOR	BH01_0.0-0.1	BH02_0.0-0.1	BH03_0.4-0.5	BH05_0.0-0.1	BH06_0.0-0.1
			SOIL - 23/4/2025 SE282211.001	SOIL - 23/4/2025 SE282211.003	SOIL - 24/4/2025 SE282211.004	SOIL - 29/4/2025 SE282211.006	SOIL - 30/4/2025 SE282211.008
Arochlor 1016	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total PCBs	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 2/5/2025

PARAMETER	UOM	LOR	BH01_0.0-0.1	BH01_0.3-0.4	BH02_0.0-0.1	BH03_0.4-0.5	BH03_0.9-1.0
			SOIL	SOIL	SOIL	SOIL	SOIL
			- 23/4/2025 SE282211.001	- 23/4/2025 SE282211.002	- 23/4/2025 SE282211.003	- 24/4/2025 SE282211.004	- 24/4/2025 SE282211.005
Arsenic, As	mg/kg	1	7	6	6	5	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	22	16	14	16	13
Copper, Cu	mg/kg	0.5	16	20	18	15	20
Lead, Pb	mg/kg	1	25	12	27	16	13
Nickel, Ni	mg/kg	0.5	7.8	6.2	9.5	8.7	7.9
Zinc, Zn	mg/kg	2	40	31	67	21	34

PARAMETER	UOM	LOR	BH05_0.0-0.1	BH05_0.4-0.5	BH06_0.0-0.1	QD1
			SOIL	SOIL	SOIL	SOIL
			- 29/4/2025 SE282211.006	- 29/4/2025 SE282211.007	- 30/4/2025 SE282211.008	- 23/4/2025 SE282211.009
Arsenic, As	mg/kg	1	5	4	6	7
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	11	10	9.8	22
Copper, Cu	mg/kg	0.5	19	25	12	13
Lead, Pb	mg/kg	1	15	12	12	23
Nickel, Ni	mg/kg	0.5	4.8	5.9	6.9	8.6
Zinc, Zn	mg/kg	2	29	40	19	41

Mercury in Soil [AN312] Tested: 2/5/2025

			BH01_0.0-0.1	BH01_0.3-0.4	BH02_0.0-0.1	BH03_0.4-0.5	BH03_0.9-1.0
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			23/4/2025	23/4/2025	23/4/2025	24/4/2025	24/4/2025
PARAMETER	UOM	LOR	SE282211.001	SE282211.002	SE282211.003	SE282211.004	SE282211.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			BH05_0.0-0.1	BH05_0.4-0.5	BH06_0.0-0.1	QD1
			SOIL	SOIL	SOIL	SOIL
			-	-	-	-
			29/4/2025	29/4/2025	30/4/2025	23/4/2025
PARAMETER	UOM	LOR	SE282211.006	SE282211.007	SE282211.008	SE282211.009
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 2/5/2025

			BH01_0.0-0.1	BH01_0.3-0.4	BH02_0.0-0.1	BH03_0.4-0.5	BH03_0.9-1.0
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			23/4/2025	23/4/2025	23/4/2025	24/4/2025	24/4/2025
PARAMETER	UOM	LOR	SE282211.001	SE282211.002	SE282211.003	SE282211.004	SE282211.005
% Moisture	%w/w	1	14.3	16.2	20.7	17.0	15.0

			BH05_0.0-0.1	BH05_0.4-0.5	BH06_0.0-0.1	QD1	TB1
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			29/4/2025	29/4/2025	30/4/2025	23/4/2025	23/4/2025
PARAMETER	UOM	LOR	SE282211.006	SE282211.007	SE282211.008	SE282211.009	SE282211.011
% Moisture	%w/w	1	12.6	15.0	18.3	16.0	<1.0

Fibre Identification in soil [AS4964/AN602] Tested: 2/5/2025

PARAMETER	UOM	LOR	BH01_0.0-0.1	BH02_0.0-0.1	BH03_0.4-0.5	BH05_0.0-0.1	BH06_0.0-0.1
			SOIL - 23/4/2025 SE282211.001	SOIL - 23/4/2025 SE282211.003	SOIL - 24/4/2025 SE282211.004	SOIL - 29/4/2025 SE282211.006	SOIL - 30/4/2025 SE282211.008
Date Analysed*	No unit	-	09/05/2025 00:00	09/05/2025 00:00	09/05/2025 00:00	09/05/2025 00:00	09/05/2025 00:00
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

VOCs in Water [AN433] Tested: 6/5/2025

			QR1
			WATER
			-
			23/4/2025
			SE282211.012
PARAMETER	UOM	LOR	
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene (VOC)*	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 6/5/2025

			QR1
			WATER
			-
			23/4/2025
			SE282211.012
PARAMETER	UOM	LOR	
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 5/5/2025

			QR1
			WATER
			-
			23/4/2025
PARAMETER	UOM	LOR	SE282211.012
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16	µg/L	60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C40	µg/L	320	<320

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 6/5/2025

			QR1
			WATER
			-
			23/4/2025
PARAMETER	UOM	LOR	SE282211.012
Arsenic	µg/L	1	<1
Cadmium	µg/L	0.1	<0.1
Chromium	µg/L	1	<1
Copper	µg/L	1	<1
Lead	µg/L	1	<1
Nickel	µg/L	1	<1
Zinc	µg/L	5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 5/5/2025

			QR1
			WATER
			-
			23/4/2025
PARAMETER	UOM	LOR	SE282211.012
Mercury	mg/L	0.0001	<0.0001

METHOD

METHODOLOGY SUMMARY

- AN002** The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
- AN020** Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
- AN040/AN320** A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
- AN040** A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by AAS or ICP as per USEPA Method 200.8.
- AN311(Perth)/AN312** Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
- AN312** Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
- AN318** Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
- AN403** Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
- AN403** Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
- AN403** The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
- AN420** (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
Total PAH calculated from individual analyte detections at or above the limit of reporting .
- AN420** SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
- AN433** VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
- AN602/AS4964** Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
- AN602/AS4964** Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
- AN602/AS4964** AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602/AS4964

The sample can be reported "no asbestos found at the reporting limit (RL) of 0.1 g/kg" (<0.01%/w/w) where AN602 section 4.5 of this method has been followed, and if-

- (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres):
- (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and
- (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received. Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- a. 1 Bq is equivalent to 27 pCi
- b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This report must not be reproduced, except in full.

CLIENT DETAILS

LABORATORY DETAILS

Contact	Jordan Goehner Drewe	Manager	Shane McDermott
Client	EI AUSTRALIA	Laboratory	SGS Alexandria Environmental
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	61 2 95160722	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	jordan.goehner-drewe@eiaustralia.com.au	Email	au.environmental.sydney@sgs.com
Project	E26733 135 Badgerys Creek rd Bradfield N	SGS Reference	SE282211 R0
Order Number	E26733	Date Received	01 May 2025
Samples	5	Date Reported	13 May 2025

COMMENTS

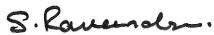
Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample #4,6: A portion of the sample supplied has been sub-sampled for asbestos analysis in soil according to SGS In-house procedures due to large volume. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Industries and Environment recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin

SIGNATORIES



Ravee SIVASUBRAMANIAM
Hygiene Team Leader

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Date Analysed	Fibre Identification	Est.%w/w*
SE282211.001	BH01_0.0-0.1	Soil	187g Clay, Sand, Rocks	23 Apr 2025	09 May 2025	No Asbestos Found at RL of 0.1g/kg	<0.01
SE282211.003	BH02_0.0-0.1	Soil	123g Clay, Sand, Rocks	23 Apr 2025	09 May 2025	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE282211.004	BH03_0.4-0.5	Soil	120g Clay, Sand, Rocks	24 Apr 2025	09 May 2025	No Asbestos Found at RL of 0.1g/kg	<0.01
SE282211.006	BH05_0.0-0.1	Soil	125g Clay, Rocks	29 Apr 2025	09 May 2025	No Asbestos Found at RL of 0.1g/kg	<0.01
SE282211.008	BH06_0.0-0.1	Soil	169g Clay, Sand, Rocks	30 Apr 2025	09 May 2025	No Asbestos Found at RL of 0.1g/kg	<0.01

METHOD

METHODOLOGY SUMMARY

AN602/AS4964	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602/AS4964	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602/AS4964	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602/AS4964	The sample can be reported "no asbestos found at the reporting limit (RL) of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- <ul style="list-style-type: none"> (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres); (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service.
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.
			***	-	Indicates that both * and ** apply.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.

Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.

Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This test report shall not be reproduced, except in full.

CLIENT DETAILS

Contact Jordan Goehner Drewe
Client EI AUSTRALIA
Address SUITE 6.01
 55 MILLER STREET
 PYRMONT NSW 2009

Telephone 61 2 95160722
Facsimile (Not specified)
Email jordan.goehner-drewe@eiaustralia.com.au

Project **E26733 135 Badgerys Creek rd Bradfield N**
Order Number **E26733**
Samples 12

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
 Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

SGS Reference **SE282211 R0**
Date Received 01 May 2025
Date Reported 13 May 2025

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
 This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
 The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	TRH (Total Recoverable Hydrocarbons) in Water	1 item
Analysis Date	VOCs in Water	1 item
	Volatile Petroleum Hydrocarbons in Water	2 items
Duplicate	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	10 items
Matrix Spike	Mercury in Soil	1 item
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items
	TRH (Total Recoverable Hydrocarbons) in Soil	5 items

SAMPLE SUMMARY

Sample counts by matrix	11 Soil, 1 Water	Type of documentation received	COC
Date documentation received	01/05/2025@05:55F	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	9.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Fibre Identification in soil

Method: ME-(AU)-[ENV]AS4964/AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH01_0.0-0.1	SE282211.001	LB345939	23 Apr 2025	01 May 2025	23 Apr 2026	02 May 2025	23 Apr 2026	09 May 2025
BH02_0.0-0.1	SE282211.003	LB345939	23 Apr 2025	01 May 2025	23 Apr 2026	02 May 2025	23 Apr 2026	09 May 2025
BH03_0.4-0.5	SE282211.004	LB345939	24 Apr 2025	01 May 2025	24 Apr 2026	02 May 2025	24 Apr 2026	09 May 2025
BH05_0.0-0.1	SE282211.006	LB345939	29 Apr 2025	01 May 2025	29 Apr 2026	02 May 2025	29 Apr 2026	09 May 2025
BH06_0.0-0.1	SE282211.008	LB345939	30 Apr 2025	01 May 2025	30 Apr 2026	02 May 2025	30 Apr 2026	09 May 2025

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE282211.012	LB346016	23 Apr 2025	01 May 2025	21 May 2025	05 May 2025	21 May 2025	05 May 2025

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH01_0.0-0.1	SE282211.001	LB345951	23 Apr 2025	01 May 2025	21 May 2025	02 May 2025	21 May 2025	06 May 2025
BH01_0.3-0.4	SE282211.002	LB345951	23 Apr 2025	01 May 2025	21 May 2025	02 May 2025	21 May 2025	06 May 2025
BH02_0.0-0.1	SE282211.003	LB345951	23 Apr 2025	01 May 2025	21 May 2025	02 May 2025	21 May 2025	06 May 2025
BH03_0.4-0.5	SE282211.004	LB345951	24 Apr 2025	01 May 2025	22 May 2025	02 May 2025	22 May 2025	06 May 2025
BH03_0.9-1.0	SE282211.005	LB345951	24 Apr 2025	01 May 2025	22 May 2025	02 May 2025	22 May 2025	06 May 2025
BH05_0.0-0.1	SE282211.006	LB345951	29 Apr 2025	01 May 2025	27 May 2025	02 May 2025	27 May 2025	06 May 2025
BH05_0.4-0.5	SE282211.007	LB345951	29 Apr 2025	01 May 2025	27 May 2025	02 May 2025	27 May 2025	06 May 2025
BH06_0.0-0.1	SE282211.008	LB345951	30 Apr 2025	01 May 2025	28 May 2025	02 May 2025	28 May 2025	06 May 2025
QD1	SE282211.009	LB345951	23 Apr 2025	01 May 2025	21 May 2025	02 May 2025	21 May 2025	06 May 2025

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH01_0.0-0.1	SE282211.001	LB345949	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	06 May 2025
BH01_0.3-0.4	SE282211.002	LB345949	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	06 May 2025
BH02_0.0-0.1	SE282211.003	LB345949	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	06 May 2025
BH03_0.4-0.5	SE282211.004	LB345949	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	07 May 2025	06 May 2025
BH03_0.9-1.0	SE282211.005	LB345949	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	07 May 2025	06 May 2025
BH05_0.0-0.1	SE282211.006	LB345949	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	07 May 2025	06 May 2025
BH05_0.4-0.5	SE282211.007	LB345949	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	07 May 2025	06 May 2025
BH06_0.0-0.1	SE282211.008	LB345949	30 Apr 2025	01 May 2025	14 May 2025	02 May 2025	07 May 2025	06 May 2025
QD1	SE282211.009	LB345949	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	06 May 2025
TB1	SE282211.011	LB345949	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	06 May 2025

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH01_0.0-0.1	SE282211.001	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH01_0.3-0.4	SE282211.002	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	08 May 2025
BH02_0.0-0.1	SE282211.003	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH03_0.4-0.5	SE282211.004	LB345944	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH03_0.9-1.0	SE282211.005	LB345944	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	11 Jun 2025	08 May 2025
BH05_0.0-0.1	SE282211.006	LB345944	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH05_0.4-0.5	SE282211.007	LB345944	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	11 Jun 2025	08 May 2025
BH06_0.0-0.1	SE282211.008	LB345944	30 Apr 2025	01 May 2025	14 May 2025	02 May 2025	11 Jun 2025	06 May 2025
QD1	SE282211.009	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	08 May 2025

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH01_0.0-0.1	SE282211.001	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH01_0.3-0.4	SE282211.002	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	08 May 2025
BH02_0.0-0.1	SE282211.003	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH03_0.4-0.5	SE282211.004	LB345944	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH03_0.9-1.0	SE282211.005	LB345944	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	11 Jun 2025	08 May 2025
BH05_0.0-0.1	SE282211.006	LB345944	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH05_0.4-0.5	SE282211.007	LB345944	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	11 Jun 2025	08 May 2025
BH06_0.0-0.1	SE282211.008	LB345944	30 Apr 2025	01 May 2025	14 May 2025	02 May 2025	11 Jun 2025	06 May 2025
QD1	SE282211.009	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	08 May 2025

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref
-------------	------------	--------

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]JAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH01_0.0-0.1	SE282211.001	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH01_0.3-0.4	SE282211.002	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH02_0.0-0.1	SE282211.003	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH03_0.4-0.5	SE282211.004	LB345944	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH03_0.9-1.0	SE282211.005	LB345944	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH05_0.0-0.1	SE282211.006	LB345944	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH05_0.4-0.5	SE282211.007	LB345944	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH06_0.0-0.1	SE282211.008	LB345944	30 Apr 2025	01 May 2025	14 May 2025	02 May 2025	11 Jun 2025	06 May 2025
QD1	SE282211.009	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	08 May 2025

PCBs in Soil

Method: ME-(AU)-[ENV]JAN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH01_0.0-0.1	SE282211.001	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH01_0.3-0.4	SE282211.002	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	08 May 2025
BH02_0.0-0.1	SE282211.003	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH03_0.4-0.5	SE282211.004	LB345944	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH03_0.9-1.0	SE282211.005	LB345944	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	11 Jun 2025	08 May 2025
BH05_0.0-0.1	SE282211.006	LB345944	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH05_0.4-0.5	SE282211.007	LB345944	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	11 Jun 2025	08 May 2025
BH06_0.0-0.1	SE282211.008	LB345944	30 Apr 2025	01 May 2025	14 May 2025	02 May 2025	11 Jun 2025	06 May 2025
QD1	SE282211.009	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	08 May 2025

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]JAN40/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH01_0.0-0.1	SE282211.001	LB345942	23 Apr 2025	01 May 2025	20 Oct 2025	02 May 2025	20 Oct 2025	06 May 2025
BH01_0.3-0.4	SE282211.002	LB345942	23 Apr 2025	01 May 2025	20 Oct 2025	02 May 2025	20 Oct 2025	06 May 2025
BH02_0.0-0.1	SE282211.003	LB345942	23 Apr 2025	01 May 2025	20 Oct 2025	02 May 2025	20 Oct 2025	06 May 2025
BH03_0.4-0.5	SE282211.004	LB345942	24 Apr 2025	01 May 2025	21 Oct 2025	02 May 2025	21 Oct 2025	06 May 2025
BH03_0.9-1.0	SE282211.005	LB345942	24 Apr 2025	01 May 2025	21 Oct 2025	02 May 2025	21 Oct 2025	06 May 2025
BH05_0.0-0.1	SE282211.006	LB345942	29 Apr 2025	01 May 2025	26 Oct 2025	02 May 2025	26 Oct 2025	06 May 2025
BH05_0.4-0.5	SE282211.007	LB345942	29 Apr 2025	01 May 2025	26 Oct 2025	02 May 2025	26 Oct 2025	06 May 2025
BH06_0.0-0.1	SE282211.008	LB345942	30 Apr 2025	01 May 2025	27 Oct 2025	02 May 2025	27 Oct 2025	06 May 2025
QD1	SE282211.009	LB345942	23 Apr 2025	01 May 2025	20 Oct 2025	02 May 2025	20 Oct 2025	06 May 2025

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]JAN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE282211.012	LB346211	23 Apr 2025	01 May 2025	20 Oct 2025	06 May 2025	20 Oct 2025	07 May 2025

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]JAN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH01_0.0-0.1	SE282211.001	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH01_0.3-0.4	SE282211.002	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH02_0.0-0.1	SE282211.003	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH03_0.4-0.5	SE282211.004	LB345944	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH03_0.9-1.0	SE282211.005	LB345944	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH05_0.0-0.1	SE282211.006	LB345944	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH05_0.4-0.5	SE282211.007	LB345944	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	11 Jun 2025	06 May 2025
BH06_0.0-0.1	SE282211.008	LB345944	30 Apr 2025	01 May 2025	14 May 2025	02 May 2025	11 Jun 2025	06 May 2025
QD1	SE282211.009	LB345944	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	11 Jun 2025	06 May 2025

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]JAN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE282211.012	LB346012	23 Apr 2025	01 May 2025	30 Apr 2025	05 May 2025†	14 Jun 2025	07 May 2025

VOC's in Soil

Method: ME-(AU)-[ENV]JAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH01_0.0-0.1	SE282211.001	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	07 May 2025
BH01_0.3-0.4	SE282211.002	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	07 May 2025
BH02_0.0-0.1	SE282211.003	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	07 May 2025
BH03_0.4-0.5	SE282211.004	LB345947	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	08 May 2025	07 May 2025
BH03_0.9-1.0	SE282211.005	LB345947	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	08 May 2025	07 May 2025

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

VOC's in Soil (continued)

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH05_0.0-0.1	SE282211.006	LB345947	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	13 May 2025	07 May 2025
BH05_0.4-0.5	SE282211.007	LB345947	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	13 May 2025	07 May 2025
BH06_0.0-0.1	SE282211.008	LB345947	30 Apr 2025	01 May 2025	14 May 2025	02 May 2025	14 May 2025	07 May 2025
QD1	SE282211.009	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	07 May 2025
TS1	SE282211.010	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	07 May 2025
TB1	SE282211.011	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	07 May 2025

VOCs in Water

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE282211.012	LB346214	23 Apr 2025	01 May 2025	07 May 2025	06 May 2025	07 May 2025	09 May 2025†

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH01_0.0-0.1	SE282211.001	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	07 May 2025
BH01_0.3-0.4	SE282211.002	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	07 May 2025
BH02_0.0-0.1	SE282211.003	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	07 May 2025
BH03_0.4-0.5	SE282211.004	LB345947	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	08 May 2025	07 May 2025
BH03_0.9-1.0	SE282211.005	LB345947	24 Apr 2025	01 May 2025	08 May 2025	02 May 2025	08 May 2025	07 May 2025
BH05_0.0-0.1	SE282211.006	LB345947	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	13 May 2025	07 May 2025
BH05_0.4-0.5	SE282211.007	LB345947	29 Apr 2025	01 May 2025	13 May 2025	02 May 2025	13 May 2025	07 May 2025
BH06_0.0-0.1	SE282211.008	LB345947	30 Apr 2025	01 May 2025	14 May 2025	02 May 2025	14 May 2025	07 May 2025
QD1	SE282211.009	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	07 May 2025
TS1	SE282211.010	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	08 May 2025†
TB1	SE282211.011	LB345947	23 Apr 2025	01 May 2025	07 May 2025	02 May 2025	07 May 2025	08 May 2025†

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-ENVJAN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE282211.012	LB346214	23 Apr 2025	01 May 2025	07 May 2025	06 May 2025	07 May 2025	09 May 2025†

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH01_0.0-0.1	SE282211.001	%	60 - 130%	94
	BH02_0.0-0.1	SE282211.003	%	60 - 130%	93
	BH03_0.4-0.5	SE282211.004	%	60 - 130%	95
	BH05_0.0-0.1	SE282211.006	%	60 - 130%	90
	BH06_0.0-0.1	SE282211.008	%	60 - 130%	93

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH01_0.0-0.1	SE282211.001	%	60 - 130%	95
	BH02_0.0-0.1	SE282211.003	%	60 - 130%	94
	BH03_0.4-0.5	SE282211.004	%	60 - 130%	95
	BH05_0.0-0.1	SE282211.006	%	60 - 130%	90
	BH06_0.0-0.1	SE282211.008	%	60 - 130%	94
d14-p-terphenyl (Surrogate)	BH01_0.0-0.1	SE282211.001	%	60 - 130%	92
	BH02_0.0-0.1	SE282211.003	%	60 - 130%	91
	BH03_0.4-0.5	SE282211.004	%	60 - 130%	92
	BH05_0.0-0.1	SE282211.006	%	60 - 130%	87
	BH06_0.0-0.1	SE282211.008	%	60 - 130%	94

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
2-fluorobiphenyl (Surrogate)	BH01_0.0-0.1	SE282211.001	%	70 - 130%	95	
	BH01_0.3-0.4	SE282211.002	%	70 - 130%	95	
	BH02_0.0-0.1	SE282211.003	%	70 - 130%	94	
	BH03_0.4-0.5	SE282211.004	%	70 - 130%	95	
	BH03_0.9-1.0	SE282211.005	%	70 - 130%	94	
	BH05_0.0-0.1	SE282211.006	%	70 - 130%	90	
	BH05_0.4-0.5	SE282211.007	%	70 - 130%	90	
	BH06_0.0-0.1	SE282211.008	%	70 - 130%	94	
	d14-p-terphenyl (Surrogate)	BH01_0.0-0.1	SE282211.001	%	70 - 130%	92
		BH01_0.3-0.4	SE282211.002	%	70 - 130%	93
BH02_0.0-0.1		SE282211.003	%	70 - 130%	91	
BH03_0.4-0.5		SE282211.004	%	70 - 130%	92	
BH03_0.9-1.0		SE282211.005	%	70 - 130%	91	
BH05_0.0-0.1		SE282211.006	%	70 - 130%	87	
BH05_0.4-0.5		SE282211.007	%	70 - 130%	92	
BH06_0.0-0.1		SE282211.008	%	70 - 130%	94	
d5-nitrobenzene (Surrogate)		BH01_0.0-0.1	SE282211.001	%	70 - 130%	92
		BH01_0.3-0.4	SE282211.002	%	70 - 130%	93
	BH02_0.0-0.1	SE282211.003	%	70 - 130%	90	
	BH03_0.4-0.5	SE282211.004	%	70 - 130%	95	
	BH03_0.9-1.0	SE282211.005	%	70 - 130%	93	
	BH05_0.0-0.1	SE282211.006	%	70 - 130%	87	
	BH05_0.4-0.5	SE282211.007	%	70 - 130%	83	
	BH06_0.0-0.1	SE282211.008	%	70 - 130%	98	

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	BH01_0.0-0.1	SE282211.001	%	60 - 130%	94
	BH02_0.0-0.1	SE282211.003	%	60 - 130%	93
	BH03_0.4-0.5	SE282211.004	%	60 - 130%	95
	BH05_0.0-0.1	SE282211.006	%	60 - 130%	90
	BH06_0.0-0.1	SE282211.008	%	60 - 130%	93

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH01_0.0-0.1	SE282211.001	%	60 - 130%	80
	BH01_0.3-0.4	SE282211.002	%	60 - 130%	88
	BH02_0.0-0.1	SE282211.003	%	60 - 130%	75
	BH03_0.4-0.5	SE282211.004	%	60 - 130%	84
	BH03_0.9-1.0	SE282211.005	%	60 - 130%	79
	BH05_0.0-0.1	SE282211.006	%	60 - 130%	86
	BH05_0.4-0.5	SE282211.007	%	60 - 130%	86

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH06_0.0-0.1	SE282211.008	%	60 - 130%	87
	QD1	SE282211.009	%	60 - 130%	82
	TS1	SE282211.010	%	60 - 130%	71
	TB1	SE282211.011	%	60 - 130%	88
d4-1,2-dichloroethane (Surrogate)	BH01_0.0-0.1	SE282211.001	%	60 - 130%	84
	BH01_0.3-0.4	SE282211.002	%	60 - 130%	86
	BH02_0.0-0.1	SE282211.003	%	60 - 130%	75
	BH03_0.4-0.5	SE282211.004	%	60 - 130%	85
	BH03_0.9-1.0	SE282211.005	%	60 - 130%	80
	BH05_0.0-0.1	SE282211.006	%	60 - 130%	87
	BH05_0.4-0.5	SE282211.007	%	60 - 130%	87
	BH06_0.0-0.1	SE282211.008	%	60 - 130%	88
	QD1	SE282211.009	%	60 - 130%	83
	TS1	SE282211.010	%	60 - 130%	96
	TB1	SE282211.011	%	60 - 130%	91
d8-toluene (Surrogate)	BH01_0.0-0.1	SE282211.001	%	60 - 130%	78
	BH01_0.3-0.4	SE282211.002	%	60 - 130%	85
	BH02_0.0-0.1	SE282211.003	%	60 - 130%	73
	BH03_0.4-0.5	SE282211.004	%	60 - 130%	81
	BH03_0.9-1.0	SE282211.005	%	60 - 130%	77
	BH05_0.0-0.1	SE282211.006	%	60 - 130%	81
	BH05_0.4-0.5	SE282211.007	%	60 - 130%	85
	BH06_0.0-0.1	SE282211.008	%	60 - 130%	85
	QD1	SE282211.009	%	60 - 130%	80
	TS1	SE282211.010	%	60 - 130%	88
	TB1	SE282211.011	%	60 - 130%	86

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE282211.012	%	40 - 130%	95
d4-1,2-dichloroethane (Surrogate)	QR1	SE282211.012	%	40 - 130%	83
d8-toluene (Surrogate)	QR1	SE282211.012	%	40 - 130%	85

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
Bromofluorobenzene (Surrogate)	BH01_0.0-0.1	SE282211.001	%	60 - 130%	80	
	BH01_0.3-0.4	SE282211.002	%	60 - 130%	88	
	BH02_0.0-0.1	SE282211.003	%	60 - 130%	75	
	BH03_0.4-0.5	SE282211.004	%	60 - 130%	84	
	BH03_0.9-1.0	SE282211.005	%	60 - 130%	79	
	BH05_0.0-0.1	SE282211.006	%	60 - 130%	86	
	BH05_0.4-0.5	SE282211.007	%	60 - 130%	86	
	BH06_0.0-0.1	SE282211.008	%	60 - 130%	87	
	QD1	SE282211.009	%	60 - 130%	82	
	d4-1,2-dichloroethane (Surrogate)	BH01_0.0-0.1	SE282211.001	%	60 - 130%	84
		BH01_0.3-0.4	SE282211.002	%	60 - 130%	86
BH02_0.0-0.1		SE282211.003	%	60 - 130%	75	
BH03_0.4-0.5		SE282211.004	%	60 - 130%	85	
BH03_0.9-1.0		SE282211.005	%	60 - 130%	80	
BH05_0.0-0.1		SE282211.006	%	60 - 130%	87	
BH05_0.4-0.5		SE282211.007	%	60 - 130%	87	
BH06_0.0-0.1		SE282211.008	%	60 - 130%	88	
QD1		SE282211.009	%	60 - 130%	83	
d8-toluene (Surrogate)		BH01_0.0-0.1	SE282211.001	%	60 - 130%	78
		BH01_0.3-0.4	SE282211.002	%	60 - 130%	85
	BH02_0.0-0.1	SE282211.003	%	60 - 130%	73	
	BH03_0.4-0.5	SE282211.004	%	60 - 130%	81	
	BH03_0.9-1.0	SE282211.005	%	60 - 130%	77	
	BH05_0.0-0.1	SE282211.006	%	60 - 130%	81	
	BH05_0.4-0.5	SE282211.007	%	60 - 130%	85	
	BH06_0.0-0.1	SE282211.008	%	60 - 130%	85	
	QD1	SE282211.009	%	60 - 130%	80	



Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE282211.012	%	40 - 130%	95
d4-1,2-dichloroethane (Surrogate)	QR1	SE282211.012	%	60 - 130%	83
d8-toluene (Surrogate)	QR1	SE282211.012	%	40 - 130%	85

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB346016.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB345951.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB345944.001	Alpha BHC	mg/kg	0.1	<0.1
	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Lindane (gamma BHC)	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.1	<0.1
	p,p'-DDE	mg/kg	0.1	<0.1
	Dieldrin	mg/kg	0.1	<0.1
	Endrin	mg/kg	0.1	<0.1
	Beta Endosulfan	mg/kg	0.1	<0.1
	p,p'-DDD	mg/kg	0.1	<0.1
	Endrin aldehyde	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
	Endrin ketone	mg/kg	0.1	<0.1
	Methoxychlor	mg/kg	0.1	<0.1
	Mirex	mg/kg	0.1	<0.1
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	100

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	
LB345944.001	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	
	Bromophos Ethyl	mg/kg	0.2	<0.2	
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5	
	Dichlorvos	mg/kg	0.5	<0.5	
	Dimethoate	mg/kg	0.5	<0.5	
	Ethion	mg/kg	0.2	<0.2	
	Fenitrothion	mg/kg	0.2	<0.2	
	Malathion	mg/kg	0.2	<0.2	
	Methidathion	mg/kg	0.5	<0.5	
	Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	98
		d14-p-terphenyl (Surrogate)	%	-	97

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB345944.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	
LB345944.001	Fluoranthene	mg/kg	0.1	<0.1	
	Pyrene	mg/kg	0.1	<0.1	
	Benzo(a)anthracene	mg/kg	0.1	<0.1	
	Chrysene	mg/kg	0.1	<0.1	
	Benzo(a)pyrene	mg/kg	0.1	<0.1	
	Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	
	Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	
	Benzo(ghi)perylene	mg/kg	0.1	<0.1	
	Total PAH (18)	mg/kg	0.8	<0.8	
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	98
		2-fluorobiphenyl (Surrogate)	%	-	98
		d14-p-terphenyl (Surrogate)	%	-	97

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB345944.001	Arochlor 1016	mg/kg	0.1	<0.1
	Arochlor 1221	mg/kg	0.1	<0.1
	Arochlor 1232	mg/kg	0.1	<0.1
	Arochlor 1242	mg/kg	0.1	<0.1
	Arochlor 1248	mg/kg	0.1	<0.1
	Arochlor 1254	mg/kg	0.1	<0.1
	Arochlor 1260	mg/kg	0.1	<0.1
	Total PCBs	mg/kg	0.1	<0.1
	Surrogates	TCMX (Surrogate)	%	-

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB345942.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB346211.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB345944.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB346012.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR
---------------	-----------	-------	-----

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	
LB345947.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)*	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	110
		d8-toluene (Surrogate)	%	-	101
		Bromofluorobenzene (Surrogate)	%	-	104
	Totals	Total BTEX*	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	
LB346214.001	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene (VOC)*	µg/L	0.5	<0.5
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	93
		d8-toluene (Surrogate)	%	-	88
		Bromofluorobenzene (Surrogate)	%	-	112

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result
LB345947.001	TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	
LB346214.001	TRH C6-C9	µg/L	40	<40	
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	93
		d8-toluene (Surrogate)	%	-	88
		Bromofluorobenzene (Surrogate)	%	-	112

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE282202.010	LB345951.014	Mercury	mg/kg	0.05	0.55	0.64	38	14
SE282211.009	LB345951.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE282202.010	LB345949.011	% Moisture	%w/w	1	12.0	13.7	38	13
SE282211.009	LB345949.021	% Moisture	%w/w	1	16.0	15.3	36	4

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE282202.010	LB345944.014	Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
		Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Dieldrin	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin	mg/kg	0.1	<0.1	<0.1	200	0
		Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0
Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0		
Mirex	mg/kg	0.1	<0.1	<0.1	200	0		
Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	200	0		
Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0		
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0		
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.46	0.47	30	1	
SE282211.008	LB345944.026	Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
		Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Dieldrin	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin	mg/kg	0.1	<0.1	<0.1	200	0
		Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0
Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0		

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

OC Pesticides in Soil (continued)

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE282211.008	LB345944.026	Mirex	mg/kg	0.1	<0.1	<0.1	200	0	
		Total OC Pesticides	mg/kg	0.1	<0.1	<0.1	200	0	
		Total OC VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0	
		Total Other OCP VIC EPA IWRG621	mg/kg	0.1	<0.1	<0.1	200	0	
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.47	0.47	30	0

OP Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE282202.010	LB345944.014	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0	
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0	
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0	
		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0	
		Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0	
		Ethion	mg/kg	0.2	<0.2	<0.2	200	0	
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0	
		Malathion	mg/kg	0.2	<0.2	<0.2	200	0	
		Methodathion	mg/kg	0.5	<0.5	<0.5	200	0	
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0	
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
SE282211.008	LB345944.026	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0	
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0	
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0	
		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0	
		Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0	
		Ethion	mg/kg	0.2	<0.2	<0.2	200	0	
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0	
		Malathion	mg/kg	0.2	<0.2	<0.2	200	0	
		Methodathion	mg/kg	0.5	<0.5	<0.5	200	0	
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0	
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE282202.010	LB345944.014	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0	
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0	
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0	
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0	
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0	
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0	
		Phenanthrene	mg/kg	0.1	0.6	0.2	55	101 @	
		Anthracene	mg/kg	0.1	0.1	<0.1	133	38	
		Fluoranthene	mg/kg	0.1	1.0	0.5	43	78 @	
		Pyrene	mg/kg	0.1	1.0	0.4	44	73 @	
		Benzo(a)anthracene	mg/kg	0.1	0.5	0.2	57	69 @	
		Chrysene	mg/kg	0.1	0.5	0.3	56	67 @	
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.4	0.3	61	40	
		Benzo(k)fluoranthene	mg/kg	0.1	0.5	0.3	55	66 @	
		Benzo(a)pyrene	mg/kg	0.1	0.6	0.4	50	56 @	
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.3	0.2	69	46	
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0	
		Benzo(ghi)perylene	mg/kg	0.1	0.3	0.2	67	47	
		Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	0.8	0.5	41	56 @	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	0.9	0.5	39	52 @	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	0.9	0.6	51	48	
		Total PAH (18)	mg/kg	0.8	6.0	2.9	32	69 @	
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.4	30	2

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE282202.010	LB345944.014	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
SE282211.008	LB345944.026		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
	Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	0		
	Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0		
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	2	
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1	
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1	

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %		
SE282202.010	LB345944.014		Arochlor 1016	mg/kg	0.1	<0.1	<0.1	200	0	
			Arochlor 1221	mg/kg	0.1	<0.1	<0.1	200	0	
			Arochlor 1232	mg/kg	0.1	<0.1	<0.1	200	0	
			Arochlor 1242	mg/kg	0.1	<0.1	<0.1	200	0	
			Arochlor 1248	mg/kg	0.1	<0.1	<0.1	200	0	
			Arochlor 1254	mg/kg	0.1	<0.1	<0.1	200	0	
			Arochlor 1260	mg/kg	0.1	<0.1	<0.1	200	0	
			Total PCBs	mg/kg	0.1	<0.1	<0.1	200	0	
			Surrogates	TCMX (Surrogate)	mg/kg	-	0.46	0.47	30	1
		SE282211.008	LB345944.026		Arochlor 1016	mg/kg	0.1	<0.1	<0.1	200
	Arochlor 1221			mg/kg	0.1	<0.1	<0.1	200	0	
	Arochlor 1232			mg/kg	0.1	<0.1	<0.1	200	0	
	Arochlor 1242			mg/kg	0.1	<0.1	<0.1	200	0	
	Arochlor 1248			mg/kg	0.1	<0.1	<0.1	200	0	
	Arochlor 1254			mg/kg	0.1	<0.1	<0.1	200	0	
	Arochlor 1260			mg/kg	0.1	<0.1	<0.1	200	0	
	Total PCBs			mg/kg	0.1	<0.1	<0.1	200	0	
	Surrogates			TCMX (Surrogate)	mg/kg	-	0.47	0.47	30	0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE282202.010	LB345942.014		Arsenic, As	mg/kg	1	7	7	44	1
			Cadmium, Cd	mg/kg	0.3	1.6	1.6	49	1
			Chromium, Cr	mg/kg	0.5	1.7	1.7	60	2
			Copper, Cu	mg/kg	0.5	24	24	32	1
			Nickel, Ni	mg/kg	0.5	3.5	3.6	44	2
			Lead, Pb	mg/kg	1	100	100	31	1
			Zinc, Zn	mg/kg	2	890	910	30	2
SE282211.009	LB345942.024		Arsenic, As	mg/kg	1	7	7	45	9
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	22	20	32	6
			Copper, Cu	mg/kg	0.5	13	16	33	15

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE282211.009	LB345942.024	Nickel, Ni	mg/kg	0.5	8.6	7.7	36	12
		Lead, Pb	mg/kg	1	23	21	34	7
		Zinc, Zn	mg/kg	2	41	37	35	11

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE282267.030	LB346211.014	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	1	1	99	1
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	4	4	43	0
SE282270.001	LB346211.022	Zinc	µg/L	5	8	8	78	3
		Arsenic	µg/L	1	2	2	60	13
		Cadmium	µg/L	0.1	3.0	3.1	18	5
		Lead	µg/L	1	130	150	16	10
		Nickel	µg/L	1	<1	<1	166	0
		Zinc	µg/L	5	13	12	55	5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE282202.010	LB345944.014	TRH C10-C14	mg/kg	20	<20	<20	200	0	
		TRH C15-C28	mg/kg	45	47	<45	144	4	
		TRH C29-C36	mg/kg	45	<45	<45	200	0	
		TRH C37-C40	mg/kg	100	<100	<100	200	0	
		TRH C10-C36 Total	mg/kg	110	<110	<110	200	0	
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0	
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	183	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE282211.008	LB345944.026	TRH C10-C14	mg/kg	20	<20	<20	200	0	
		TRH C15-C28	mg/kg	45	<45	<45	200	0	
		TRH C29-C36	mg/kg	45	<45	<45	200	0	
		TRH C37-C40	mg/kg	100	<100	<100	200	0	
		TRH C10-C36 Total	mg/kg	110	<110	<110	200	0	
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0	
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE282242.001	LB346012.029	TRH C10-C14	µg/L	50	950	1000	35	7	
		TRH C15-C28	µg/L	200	1600	1600	43	3	
		TRH C29-C36	µg/L	200	<200	<200	200	0	
		TRH C37-C40	µg/L	200	<200	<200	200	0	
		TRH C10-C40	µg/L	320	2600	2700	42	6	
		TRH F Bands	TRH >C10-C16	µg/L	60	1300	1400	34	4
			TRH >C16-C34 (F3)	µg/L	500	1200	1300	70	7
			TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0
			TRH C10-C14	µg/L	50	52	<50	132	4
			TRH C15-C28	µg/L	200	<200	<200	200	0
SE282269.003	LB346012.028	TRH C29-C36	µg/L	200	<200	<200	200	0	
		TRH C37-C40	µg/L	200	<200	<200	200	0	
		TRH C10-C40	µg/L	320	<320	<320	200	0	
		TRH F Bands	TRH >C10-C16	µg/L	60	76	69	113	10
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	76	69	113	10
			TRH >C16-C34 (F3)	µg/L	500	<500	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOC's in Soil

Method: ME-(AU)-ENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %			
SE282202.010	LB345947.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0		
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0		
		Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0			
		m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0			
		o-xylene	mg/kg	0.1	<0.1	<0.1	200	0			
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0		
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.4	9.7	50	3		
		d8-toluene (Surrogate)	mg/kg	-	8.8	9.2	50	4			
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	9.2	50	2			
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0		
		Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0			
		SE282211.009	LB345947.024	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
				Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
Ethylbenzene	mg/kg			0.1	<0.1	<0.1	200	0			
m/p-xylene	mg/kg			0.2	<0.2	<0.2	200	0			
o-xylene	mg/kg			0.1	<0.1	<0.1	200	0			
Polycyclic	Naphthalene (VOC)*			mg/kg	0.1	<0.1	<0.1	200	0		
Surrogates	d4-1,2-dichloroethane (Surrogate)			mg/kg	-	8.3	8.1	50	3		
d8-toluene (Surrogate)	mg/kg			-	8.0	7.7	50	4			
Bromofluorobenzene (Surrogate)	mg/kg			-	8.2	7.8	50	5			
Totals	Total BTEX*			mg/kg	0.6	<0.6	<0.6	200	0		
Total Xylenes*	mg/kg			0.3	<0.3	<0.3	200	0			

VOCs in Water

Method: ME-(AU)-ENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %			
SE282269.001	LB346214.024	Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0		
		Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	200	0		
		Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0			
		m/p-xylene	µg/L	1	<1	<1	200	0			
		o-xylene	µg/L	0.5	<0.5	<0.5	200	0			
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	<0.5	<0.5	200	0		
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.3	8.3	30	13		
		d8-toluene (Surrogate)	µg/L	-	8.7	10.0	30	14			
		Bromofluorobenzene (Surrogate)	µg/L	-	10.2	9.7	30	5			
		Totals	Total BTEX	µg/L	3	<3	<3	200	0		
		SE282269.004	LB346214.027	Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
				Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	200	0
				Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0	
m/p-xylene	µg/L			1	<1	<1	200	0			
o-xylene	µg/L			0.5	<0.5	<0.5	200	0			
Polycyclic	Naphthalene (VOC)*			µg/L	0.5	<0.5	<0.5	200	0		
Surrogates	d4-1,2-dichloroethane (Surrogate)			µg/L	-	8.5	8.7	30	2		
d8-toluene (Surrogate)	µg/L			-	9.0	7.8	30	15			
Bromofluorobenzene (Surrogate)	µg/L			-	9.8	11.4	30	15			
Totals	Total BTEX			µg/L	3	<3	<3	200	0		

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-ENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE282202.010	LB345947.014	TRH C6-C10	mg/kg	25	<25	<25	200	0	
		TRH C6-C9	mg/kg	20	<20	<20	200	0	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.4	9.7	50	3
		d8-toluene (Surrogate)	mg/kg	-	8.8	9.2	50	4	
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	9.2	50	2	
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0	
SE282211.009	LB345947.024	TRH C6-C10	mg/kg	25	<25	<25	200	0	
		TRH C6-C9	mg/kg	20	<20	<20	200	0	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.3	8.1	50	3
		d8-toluene (Surrogate)	mg/kg	-	8.0	7.7	50	4	
		Bromofluorobenzene (Surrogate)	mg/kg	-	8.2	7.8	50	5	
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
		TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0	

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-ENVJAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE282269.001	LB346214.023	TRH C6-C10	µg/L	50	<50	<50	200	0	
		TRH C6-C9	µg/L	40	<40	<40	200	0	
		Surrogates							
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.3	8.3	30	13	
		d8-toluene (Surrogate)	µg/L	-	8.7	10.0	30	14	
		Bromofluorobenzene (Surrogate)	µg/L	-	10.2	9.7	30	5	
		VPH F Bands							
		Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0	
		TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0	
SE282269.004	LB346214.024	TRH C6-C10	µg/L	50	<50	<50	199	0	
		TRH C6-C9	µg/L	40	42	<40	179	5	
		Surrogates							
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.5	8.7	30	2	
		d8-toluene (Surrogate)	µg/L	-	9.0	7.8	30	15	
		Bromofluorobenzene (Surrogate)	µg/L	-	9.8	11.4	30	15	
		VPH F Bands							
		Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0	
		TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	199	0	

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB345951.002	Mercury	mg/kg	0.05	0.22	0.2	80 - 120	109

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB345944.002	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	117
	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	113
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	110
	Dieldrin	mg/kg	0.1	0.2	0.2	60 - 140	117
	Endrin	mg/kg	0.1	0.2	0.2	60 - 140	117
	p,p'-DDT	mg/kg	0.1	0.3	0.2	60 - 140	139
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.49	0.5	40 - 130	98

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB345944.002	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.5	2	60 - 140	123	
	Diazinon (Dimpylate)	mg/kg	0.5	2.6	2	60 - 140	132	
	Dichlorvos	mg/kg	0.5	1.9	2	60 - 140	97	
	Ethion	mg/kg	0.2	2.8	2	60 - 140	140	
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	97
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB345944.002	Naphthalene	mg/kg	0.1	4.1	4	60 - 140	102	
	Acenaphthylene	mg/kg	0.1	4.2	4	60 - 140	106	
	Acenaphthene	mg/kg	0.1	4.2	4	60 - 140	105	
	Phenanthrene	mg/kg	0.1	4.4	4	60 - 140	110	
	Anthracene	mg/kg	0.1	4.4	4	60 - 140	110	
	Fluoranthene	mg/kg	0.1	4.3	4	60 - 140	107	
	Pyrene	mg/kg	0.1	4.2	4	60 - 140	105	
	Benzo(a)pyrene	mg/kg	0.1	4.8	4	60 - 140	120	
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	99
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	97
	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	70 - 130	98	

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB345944.002	Arochlor 1260	mg/kg	0.1	0.5	0.4	60 - 140	115
	Surrogates	TCMX (Surrogate)	mg/kg	-	0.49	0.5	40 - 130

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB345942.002	Arsenic, As	mg/kg	1	350	318.22	80 - 120	109
	Cadmium, Cd	mg/kg	0.3	4.3	4.81	70 - 130	89
	Chromium, Cr	mg/kg	0.5	37	38.31	80 - 120	97
	Copper, Cu	mg/kg	0.5	310	290	80 - 120	109
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	101
	Lead, Pb	mg/kg	1	92	89.9	80 - 120	102
	Zinc, Zn	mg/kg	2	280	273	80 - 120	104

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB346211.002	Arsenic	µg/L	1	20	20	80 - 120	98
	Cadmium	µg/L	0.1	21	20	80 - 120	106
	Chromium	µg/L	1	20	20	80 - 120	101
	Copper	µg/L	1	22	20	80 - 120	108
	Lead	µg/L	1	21	20	80 - 120	103
	Nickel	µg/L	1	21	20	80 - 120	106
	Zinc	µg/L	5	21	20	80 - 120	105

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]JAN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB345944.002	TRH C10-C14	mg/kg	20	50	40	60 - 140	125	
	TRH C15-C28	mg/kg	45	<45	40	60 - 140	111	
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	80	
	TRH F Bands	TRH >C10-C16	mg/kg	25	47	40	60 - 140	117
	TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	97	
	TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	79	

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]JAN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB346012.002	TRH C10-C14	µg/L	50	1000	1200	60 - 140	85	
	TRH C15-C28	µg/L	200	1100	1200	60 - 140	91	
	TRH C29-C36	µg/L	200	1000	1200	60 - 140	86	
	TRH F Bands	TRH >C10-C16	µg/L	60	1100	1200	60 - 140	92
	TRH >C16-C34 (F3)	µg/L	500	1100	1200	60 - 140	89	
	TRH >C34-C40 (F4)	µg/L	500	520	600	60 - 140	86	

VOC's in Soil

Method: ME-(AU)-[ENV]JAN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB345947.002	Monocyclic	Benzene	mg/kg	0.1	4.3	5	60 - 140	86
	Aromatic	Toluene	mg/kg	0.1	4.4	5	60 - 140	89
	Ethylbenzene	mg/kg	0.1	4.3	5	60 - 140	85	
	m/p-xylene	mg/kg	0.2	8.4	10	60 - 140	84	
	o-xylene	mg/kg	0.1	4.3	5	60 - 140	86	

VOCs in Water

Method: ME-(AU)-[ENV]JAN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB346214.002	Monocyclic	Benzene	µg/L	0.5	52	45.45	60 - 140	114
	Aromatic	Toluene	µg/L	0.5	52	45.45	60 - 140	114
	Ethylbenzene	µg/L	0.5	52	45.45	60 - 140	113	
	m/p-xylene	µg/L	1	110	90.9	60 - 140	116	
	o-xylene	µg/L	0.5	53	45.45	60 - 140	116	
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.0	10	60 - 140	100
	d8-toluene (Surrogate)	µg/L	-	10.6	10	70 - 130	106	
	Bromofluorobenzene (Surrogate)	µg/L	-	10.9	10	70 - 130	109	

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]JAN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB345947.002	TRH C6-C10	mg/kg	25	83	92.5	60 - 140	90
	TRH C6-C9	mg/kg	20	72	80	60 - 140	90
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	57	62.5	60 - 140

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]JAN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB346214.002	TRH C6-C10	µg/L	50	870	946.63	60 - 140	92	
	TRH C6-C9	µg/L	40	760	818.71	60 - 140	93	
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.0	10	60 - 140	100
	d8-toluene (Surrogate)	µg/L	-	10.6	10	70 - 130	106	
	Bromofluorobenzene (Surrogate)	µg/L	-	10.9	10	70 - 130	109	
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	560	639.67	60 - 140	87

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Parth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE282167.008	LB346016.004	Mercury	mg/L	0.0001	0.0019	<0.0001	0.008	98

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE282202.001	LB345951.004	Mercury	mg/kg	0.05	0.17	<0.05	0.2	68 @

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE282202.001	LB345944.004	Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
		Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	-	-
		Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	104
		Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	96
		Aldrin	mg/kg	0.1	0.2	<0.1	0.2	101
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		Chlordane (alpha + gamma chlordane)	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Endosulfan	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
		Dieldrin	mg/kg	0.1	0.2	<0.1	0.2	112
		Endrin	mg/kg	0.1	0.2	<0.1	0.2	108
		Beta Endosulfan	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDT	mg/kg	0.1	0.1	<0.1	0.2	61
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	-	-
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
		Mirex	mg/kg	0.1	<0.1	<0.1	-	-
Total OC Pesticides	mg/kg	0.1	1.2	<0.1	-	-		
Total OC VIC EPA IWRG621	mg/kg	0.1	1.2	<0.1	-	-		
Total Other OCP VIC EPA IWRG621	mg/kg	0.1	0.6	<0.1	-	-		
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.49	0.49	-	98	

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE282202.001	LB345944.004	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-	
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-	
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.2	<0.2	2	111	
		Diazinon (Dimpylate)	mg/kg	0.5	2.5	<0.5	2	126	
		Dichlorvos	mg/kg	0.5	2.3	<0.5	2	116	
		Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-	
		Ethion	mg/kg	0.2	2.4	<0.2	2	121	
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-	
		Malathion	mg/kg	0.2	<0.2	<0.2	-	-	
		Methidathion	mg/kg	0.5	<0.5	<0.5	-	-	
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-	
		Total OP Pesticides*	mg/kg	1.7	9.5	<1.7	-	-	
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	99
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	98	

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE282202.001	LB345944.004	Naphthalene	mg/kg	0.1	4.0	<0.1	4	100
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE282202.001	LB345944.004	Acenaphthylene	mg/kg	0.1	4.2	<0.1	4	104
		Acenaphthene	mg/kg	0.1	4.3	<0.1	4	107
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.6	<0.1	4	112
		Anthracene	mg/kg	0.1	4.5	<0.1	4	111
		Fluoranthene	mg/kg	0.1	4.6	0.2	4	109
		Pyrene	mg/kg	0.1	4.6	0.2	4	111
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(a)pyrene	mg/kg	0.1	5.0	0.1	4	123
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	5.0	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	5.1	<0.2	-	-
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	5.2	<0.3	-	-
		Total PAH (18)	mg/kg	0.8	36	<0.8	-	-
		Surrogates		d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5
2-fluorobiphenyl (Surrogate)	mg/kg			-	0.5	0.5	-	99
d14-p-terphenyl (Surrogate)	mg/kg			-	0.5	0.5	-	98

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE282202.001	LB345944.004	Arochlor 1016	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1221	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1232	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1242	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1248	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1254	mg/kg	0.1	<0.1	<0.1	-	-
		Arochlor 1260	mg/kg	0.1	0.4	<0.1	0.4	107
		Total PCBs	mg/kg	0.1	0.4	<0.1	-	-
Surrogates	TCMX (Surrogate)	mg/kg	-	0.49	0.49	-	98	

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE282202.001	LB345942.004	Arsenic, As	mg/kg	1	52	6	50	93
		Cadmium, Cd	mg/kg	0.3	46	<0.3	50	91
		Chromium, Cr	mg/kg	0.5	48	4.6	50	87
		Copper, Cu	mg/kg	0.5	59	21	50	75
		Nickel, Ni	mg/kg	0.5	49	3.8	50	91
		Lead, Pb	mg/kg	1	74	48	50	52 @
		Zinc, Zn	mg/kg	2	76	47	50	59 @

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE282208.001	LB346211.004	Arsenic	µg/L	1	25	<1	20	120
		Cadmium	µg/L	0.1	20	<0.1	20	99
		Copper	µg/L	1	24	6	20	90
		Lead	µg/L	1	20	<1	20	99
		Zinc	µg/L	5	250	230	20	76

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE282202.001	LB345944.004	TRH C10-C14	mg/kg	20	82	<20	40	191 @	
		TRH C15-C28	mg/kg	45	100	<45	40	177 @	
		TRH C29-C36	mg/kg	45	110	58	40	140 @	
		TRH C37-C40	mg/kg	100	<100	<100	-	-	
		TRH C10-C36 Total	mg/kg	110	300	<110	-	-	
		TRH >C10-C40 Total (F bands)	mg/kg	210	220	<210	-	-	
		TRH F	TRH >C10-C16	mg/kg	25	80	<25	40	181 @
		Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	80	<25	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE282202.001	LB345944.004	TRH F	TRH >C16-C34 (F3)	mg/kg	90	140	<90	40	166 @
		Bands	TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%		
SE282202.001	LB345947.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	5.5	<0.1	5	110	
			Toluene	mg/kg	0.1	5.6	<0.1	5	112	
			Ethylbenzene	mg/kg	0.1	5.5	<0.1	5	109	
			m/p-xylene	mg/kg	0.2	11	<0.2	10	108	
			o-xylene	mg/kg	0.1	5.6	<0.1	5	110	
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-	-	-
			Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.6	7.3	-	86
		d8-toluene (Surrogate)		mg/kg	-	7.8	6.8	-	78	
		Bromofluorobenzene (Surrogate)		mg/kg	-	7.2	7.4	-	72	
		Totals	Total BTEX*	mg/kg	0.6	33	<0.6	-	-	-
			Total Xylenes*	mg/kg	0.3	16	<0.3	-	-	-

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%		
SE282211.012	LB346214.028	Monocyclic Aromatic	Benzene	µg/L	0.5	48	<0.5	45.45	105	
			Toluene	µg/L	0.5	48	<0.5	45.45	106	
			Ethylbenzene	µg/L	0.5	40	<0.5	45.45	88	
			m/p-xylene	µg/L	1	88	<1	90.9	97	
			o-xylene	µg/L	0.5	45	<0.5	45.45	98	
		Polycyclic	Naphthalene (VOC)*	µg/L	0.5	48	<0.5	-	-	-
			Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.3	8.3	-	103
		d8-toluene (Surrogate)		µg/L	-	10.4	8.5	-	104	
		Bromofluorobenzene (Surrogate)		µg/L	-	8.5	9.5	-	85	
		Totals	Total BTEX	µg/L	3	270	<3	-	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE282202.001	LB345947.004	TRH C6-C10	mg/kg	25	110	<25	92.5	122	
			mg/kg	20	100	<20	80	125	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.6	7.3	-	86
			d8-toluene (Surrogate)	mg/kg	-	7.8	6.8	-	78
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.2	7.4	-	72
		VPH F	Benzene (F0)	mg/kg	0.1	5.5	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	80	<25	62.5	127

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE282211.012	LB346214.025	TRH C6-C10	µg/L	50	800	<50	946.63	84	
			µg/L	40	690	<40	818.71	84	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.3	8.3	-	103
			d8-toluene (Surrogate)	µg/L	-	10.4	8.5	-	104
			Bromofluorobenzene (Surrogate)	µg/L	-	8.5	9.5	-	85
		VPH F	Benzene (F0)	µg/L	0.5	48	<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	530	<50	639.67	82

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

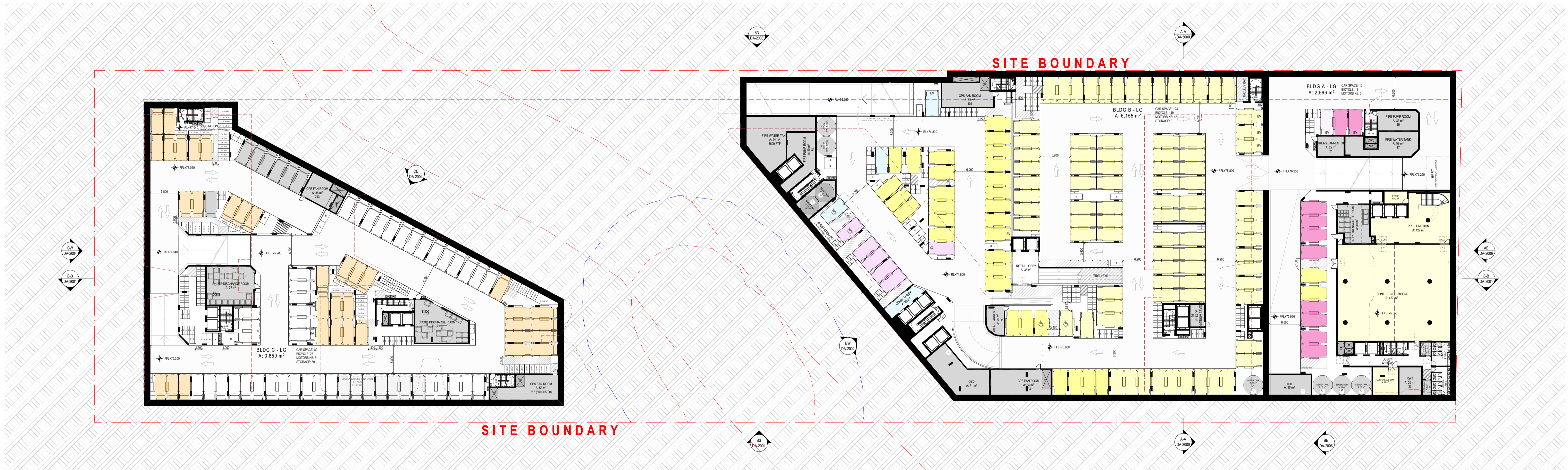
- * NATA accreditation does not cover the performance of this service .
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This test report shall not be reproduced, except in full.

Appendix I – Architectural Plans



CAR PARKING LEGEND

	BLDG A	BLDG B	BLDG C
RETAIL PREMISES CAR SPACE	2	31 (1 ACC.)	0
RETAIL PREMISES CAR SPACE	0	84 (1 ACC.)	0
HOTEL / CONFERENCE CAR SPACE	1	0	0
GYM CAR SPACE	0	0	0
MEDICAL CAR SPACE	0	0	0
COMMERCIAL CAR SPACE	0	3 (1 ACC.)	0
CHILCARE CAR SPACE	0	6 (1 ACC.)	0
RESIDENTIAL CAR SPACE	0	0	35
RESI. VISITOR CAR SPACE	0	0	47
TAVERN CAR SPACE	10	0	0
CAR SHARE	0	0	7
TOTAL	13	125 (4 ACC.)	89

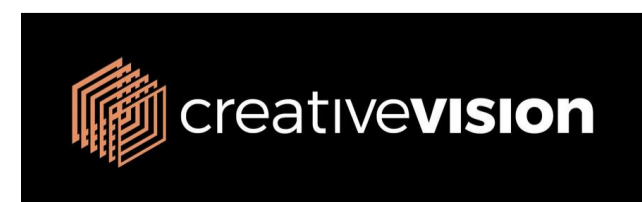
NOTES:

ACCESSIBLE PARKING SPACES WITH THEIR SHARED AREAS TO ACHIEVE A MIN. CLEAR HEAD HEIGHT OF 2.5M

FOR INFORMATION

REV	CKD	APP	Status	DATE
01	HN	AJ	FOR INFORMATION	9/5/2025
02	HN	AJ	FOR INFORMATION	9/11/2025
03	DC	AS	FOR INFORMATION	9/17/2025
04	DC	AS	FOR INFORMATION	9/19/2025

CLIENT



Urban Planning
ETHOS URBAN
T: +61 2 9956 6962

Civil Consultant
ADP CONSULTING
T: +61 2 8043 7856

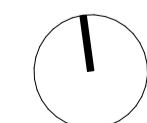
Plandscape Consultant
LAND + FORM
T: +61 430 990 004

Structure Consultant
JSBC CONSULTING
T: +61 2 9963 7222

Traffic Consultant
ASON GROUP
T: +61 2 9083 6601

Services Consultant
NEURON BUILD
T: +61 401 222 862

NORTH POINT

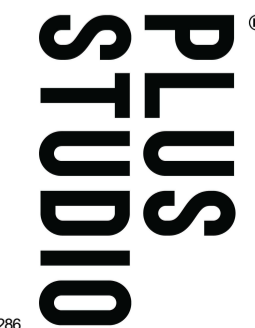


DISCLAIMER
In accepting and utilising this document, the recipient agrees that Plus Studio, retain all common law, statutory law and other rights including copyright and intellectual property rights. The recipient agrees not to use this document for any purpose other than its intended use; to waive all claims against Plus Studio resulting from unauthorised changes; or to reuse the document on other projects without the prior written consent of Plus Studio. Under no circumstances shall transfer of this document be deemed a sale. Plus Studio makes no warranties of fitness for any purpose. The Builder/Contractor shall verify all dimensions prior to any work commencing. Figured dimensions shall take precedence over scaled work.

SCALE
1:400 @A1 Size

ARCHITECT

Gadgil Country
Level 4, 222 Clarence Street
Sydney, NSW 2000
Australia
+61 2 8823 7000
sydney@plusstudio.co
plusstudio.co
2025 © Plus Architecture International Pty Ltd. All Rights Reserved.
Plus Studio® is a trade mark of Plus Architecture International Pty Ltd.



PROJECT TITLE
135 Badgerys Creeks, Bradfield
DEVELOPMENT APPLICATION

CLIENT
CREATIVEVISION
cvision.com.au
APPROVED
AS

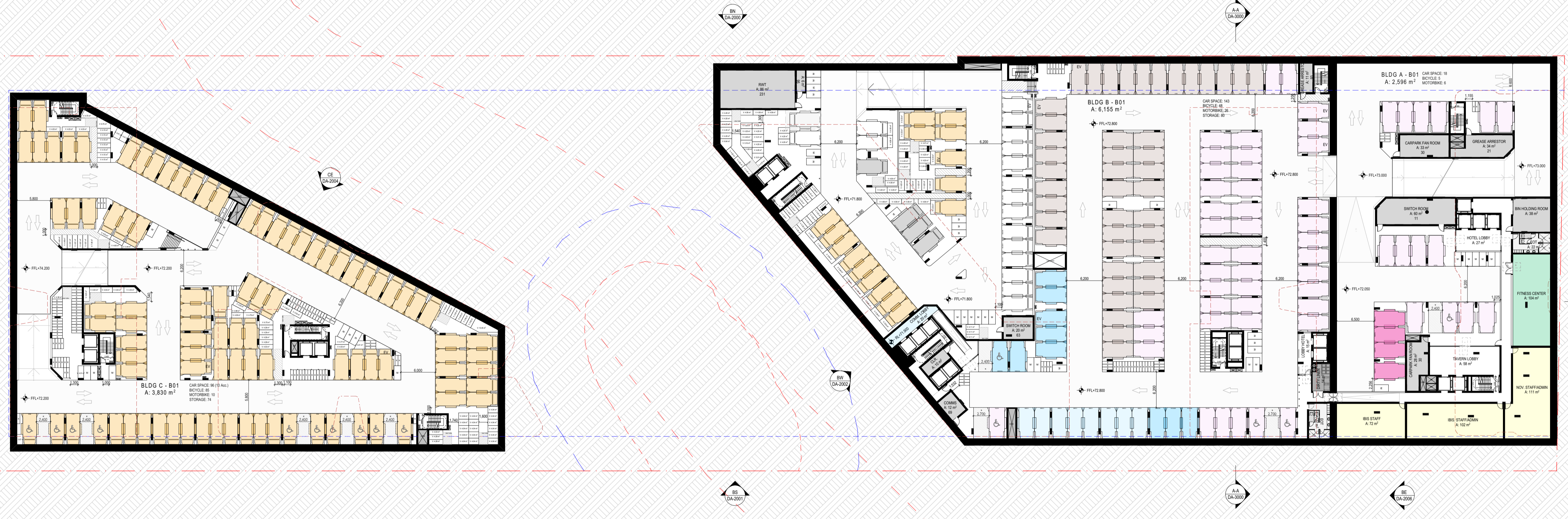
CHECKED
DC

DRAWN

DRAWING TITLE
GENERAL FLOOR PLAN - LOWER
GROUND

PROJECT NUMBER
20799
DRAWING NUMBER
DA-10B1

STAGE
DA
REVISION
04

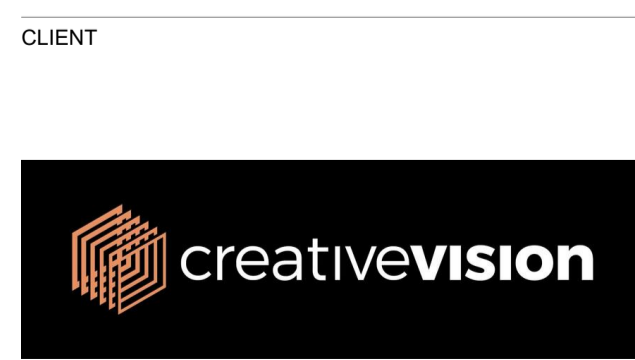


CAR PARKING LEGEND

	BLDG A	BLDG B	BLDG C
RETAIL PREMISES CAR SPACE	0	0	0
RETAIL PREMISES CAR SPACE	0	0	0
HOTEL / CONFERENCE CAR SPACE	14 (1 ACC.)	44 (3 ACC.)	0
GYM CAR SPACE	0	44	0
MEDICIAL CAR SPACE	0	10 (1 ACC.)	0
COMMERCIAL CAR SPACE	0	8	0
CHILCARE CAR SPACE	0	0	0
RESIDENTIAL CAR SPACE	0	16	96 (10ACC.)
RESI. VISITOR CAR SPACE	0	17	0
TAVERN CAR SPACE	4	0	0
CAR SHARE	0	4	0
TOTAL	18 (1 ACC.)	143 (4 ACC.)	96 (10ACC.)

NOTES:
 ACCESSIBLE PARKING SPACES WITH THEIR SHARED AREAS TO ACHIEVE A MIN. CLEAR HEAD HEIGHT OF 2.5M

REV	CKD	APP	Status	DATE
01	HN	AJ	FOR INFORMATION	9/5/2025
02	HN	AJ	FOR INFORMATION	9/11/2025
03	DC	AS	FOR INFORMATION	9/19/2025



Urban Planning
 ETHOS URBAN
 T: +61 2 9956 6962

Plandscape Consultant
 LAND + FORM
 T: +61 430 990 004

Traffic Consultant
 ASON GROUP
 T: +61 2 9083 6601

Civil Consultant
 ADP CONSULTING
 T: +61 2 8043 7856

Structure Consultant
 JSBC CONSULTING
 T: +61 2 9963 7222

Services Consultant
 NEURON BUILD
 T: +61 401 222 862

NORTH POINT

SCALE
 1:400 @A1 Size

DISCLAIMER
 In accepting and utilising this document, the recipient agrees that Plus Studio, retain all common law, statutory law and other rights including copyright and intellectual property rights. The recipient agrees not to use this document for any purpose other than its intended use, to waive all claims against Plus Studio resulting from unauthorised changes, or to reuse the document on other projects without the prior written consent of Plus Studio. Under no circumstances shall transfer of this document be deemed a sale. Plus Studio makes no warranties of fitness for any purpose. The Builder/Contractor shall verify all dimensions prior to any work commencing. Figured dimensions shall take precedence over scaled work.

ARCHITECT
 Gadgil Country
 Level 4, 222 Clarence Street
 Sydney, NSW 2000
 Australia
 +61 2 8823 7000
 sydney@plusstudio.co

PLUS STUDIO

Plus Architecture Sydney Pty Ltd
 ABN 34 600 506 303
 Nominated Architects NSW
 50 Dune 11022, A-Java 10002 + R Piv 11296

plusstudio.co
 2025 © Plus Architecture International Pty Ltd. All Rights Reserved.
 Plus Studio® is a trade mark of Plus Architecture International Pty Ltd.

PROJECT TITLE
 135 Badgerys Creeks, Bradfield
 DEVELOPMENT APPLICATION

CLIENT
 CREATIVEVISION
 cvision.com.au

APPROVED
 AS

CHECKED
 DC

DRAWN

FOR INFORMATION

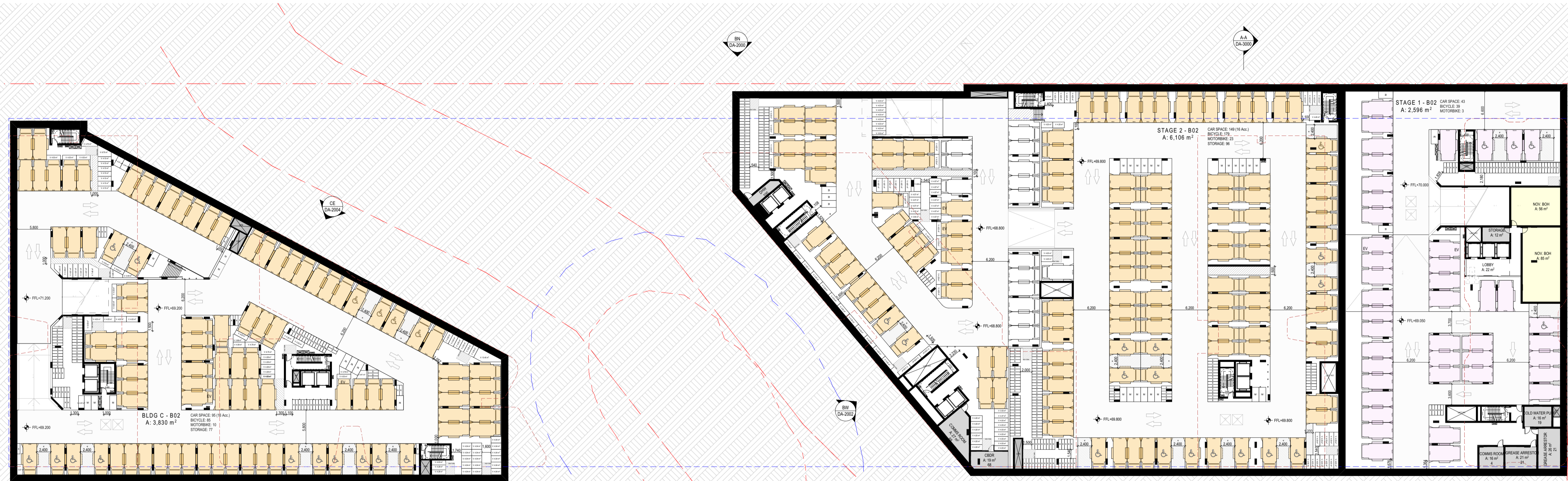
DRAWING TITLE
 GENERAL FLOOR PLAN - BASEMENT
 01

PROJECT NUMBER
 20799

DRAWING NUMBER
 DA-10B2

STAGE
 DA

REVISION
 03

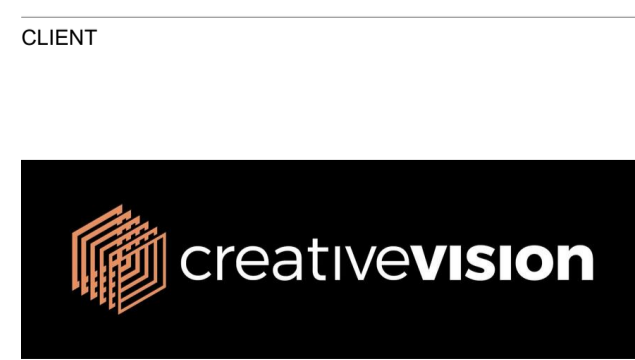


CAR PARKING LEGEND

	BLDG A	BLDG B	BLDG C
RETAIL PREMISES CAR SPACE	0	0	0
RETAIL PREMISES CAR SPACE	0	0	0
HOTEL / CONFERENCE CAR SPACE	43 (4 ACC.)	0	0
GYM CAR SPACE	0	0	0
MEDICAL CAR SPACE	0	0	0
COMMERCIAL CAR SPACE	0	0	0
CHILCARE CAR SPACE	0	0	0
RESIDENTIAL CAR SPACE	0	134 (16 ACC.)	95 (16 ACC.)
RESI. VISITOR CAR SPACE	0	15	0
TAVERN CAR SPACE	0	0	0
CAR SHARE	0	0	0
TOTAL	43 (4 ACC.)	149 (16 ACC.)	95 (16 ACC.)

NOTES:
 ACCESSIBLE PARKING SPACES WITH THEIR SHARED AREAS TO ACHIEVE A MIN. CLEAR HEAD HEIGHT OF 2.5M

REV	CKD	APP	Status	DATE
01	HN	AJ	FOR INFORMATION	9/5/2025
02	HN	AJ	FOR INFORMATION	9/11/2025
03	DC	AS	FOR INFORMATION	9/19/2025



Urban Planning
 ETHOS URBAN
 T: +61 2 9956 6962

Plandscape Consultant
 LAND + FORM
 T: +61 430 990 004

Traffic Consultant
 ASON GROUP
 T: +61 2 9083 6601

Civil Consultant
 ADP CONSULTING
 T: +61 2 8043 7856

Structure Consultant
 JSBC CONSULTING
 T: +61 2 9963 7222

Services Consultant
 NEURON BUILD
 T: +61 401 222 862

NORTH POINT

SCALE
 1:400 @A1 Size

DISCLAIMER
 In accepting and utilising this document, the recipient agrees that Plus Studio, retain all common law, statutory law and other rights including copyright and intellectual property rights. The recipient agrees not to use this document for any purpose other than its intended use, to waive all claims against Plus Studio resulting from unauthorised changes, or to reuse the document on other projects without the prior written consent of Plus Studio. Under no circumstances shall transfer of this document be deemed a sale. Plus Studio makes no warranties of fitness for any purpose. The Builder/Contractor shall verify all dimensions prior to any work commencing. Figured dimensions shall take precedence over scaled work.

ARCHITECT
 Gadigal Country
 Level 4, 222 Clarence Street
 Sydney, NSW 2000
 Australia
 +61 2 8823 7000
 sydney@plusstudio.co

PLUS STUDIO

Plus Architecture Sydney Pty Ltd
 ABN 34 600 506 303
 Nominated Architects NSW
 50 Dune 11022, A-Jake 10002 + R Pt 11206
 plusstudio.co
 2025 © Plus Architecture International Pty Ltd. All Rights Reserved.
 Plus Studio® is a trade mark of Plus Architecture International Pty Ltd.

PROJECT TITLE
 135 Badgerys Creeks, Bradfield
 DEVELOPMENT APPLICATION

CLIENT
 CREATIVEVISION
 cvision.com.au

APPROVED
 AS

CHECKED
 DC

DRAWN

FOR INFORMATION

DRAWING TITLE
 GENERAL FLOOR PLAN - BASEMENT
 02

PROJECT NUMBER
 20799

DRAWING NUMBER
 DA-10B3

STAGE
 DA

REVISION
 03

Appendix J – QA/QC Assessment

Quality Assurance / Quality Control Program

Quality assurance comprises an assessment of the reliability of the field procedures and laboratory results against standard industry practices and the SAQP. A summary of the project QA/QC measures incorporated into this PSI is presented in **Table I-1**. Refer also to **Table 5-2**.

Table I-1 Project QC Measures

Task	Description	Project
Field QA/QC		
General	Work was to be undertaken following standard field procedures which are based on industry accepted standard practice.	Soil samples were collected directly from the drill auger. Soil samples were placed in 250 gram glass jars, which were filled to minimise headspace, and sealed using Teflon-coated lids. Groundwater samples were obtained using sample bottles/jars/vials provided by the laboratory.
	All fieldwork was supervised by a suitably qualified and experienced scientist or engineer.	Yes
Equipment decontamination	Sampling equipment to be decontaminated after the collection of each soil sample by washing with phosphate-free detergent (such as <i>Decon 90</i> or <i>Alconox</i>) and potable water, followed by a final distilled water rinse. One rinsate blank would be collected and analysed for the primary contaminants. All results should be non-detect.	Yes
Transport	Samples were stored in a chilled (with ice) cooler box and transported to the laboratories. To ensure the integrity of the samples from collection to receipt by the analytical laboratory, samples were sent by courier to the laboratories under 'chain of custody' describing sample preservation and transport duration.	Yes
Trip Blanks	Trip blank samples were to be prepared and analysed by the primary laboratory for BTEX. Analytical results for this sample were below the laboratory LOR, indicating that ideal sample transport and handling conditions were achieved.	One trip blank (TB) sample was prepared by the primary laboratory, were analysed for BTEX during soil and groundwater testing. TB results were reported below the laboratory LOR, indicating that ideal sample transport and handling conditions were achieved.
Trip Spikes	Trip spike samples were to be submitted to the primary laboratory for BTEX analysis, the results for which were reported within the RPD acceptance levels for trip spike recovery. It was therefore concluded that satisfactory sample transport and handling conditions were achieved.	One trip spike (TS) sample was submitted to the primary laboratory for BTEX analysis, the results of which were reported within the RPD acceptance levels for trip spike recovery. It was therefore concluded that satisfactory sample transport and handling conditions were achieved.

Task	Description	Project
Duplicates	<p>Field duplicate samples were analysed as follows:</p> <ul style="list-style-type: none"> ▪ intra-laboratory duplicate samples at a rate of 1 in 20 primary samples (as per NEPM); and ▪ inter-laboratory duplicate samples at a rate of 1 in 20 primary samples (as per NEPM). <p>Field and laboratory acceptable limits between 30-50% RPD as stated by AS4482.1. RPDs exceeding this range were acceptable if:</p> <ul style="list-style-type: none"> ▪ Results were less than 10 times the LOR; ▪ Results were less than 20 times the LOR and the RPD was less than 50%; or ▪ Heterogeneous materials or volatile compounds were encountered. <p>Non-compliance is to be documented in the report and the sample re-analysed or a higher level conservatively adopted.</p>	<p>The required sampling density of 1 per 20 duplicated primary samples was achieved and sufficient for the investigation.</p> <p>RPDs were all within the acceptable range limit.</p> <p>The data collected from the soil sampling events were considered to be representative of the conditions at the site.</p> <p>Field and laboratory QA samples are summarised in Table I-2 and calculated RPD values are displayed in Appendix B, Table 3.</p> <p>Copies of laboratory reports are included in Appendix H.</p>
Laboratory QA/QC		
General	<p>The laboratories selected are NATA accredited for the analytes selected and perform their own internal QA/QC programs.</p>	<p>Yes</p> <p>SGS - primary laboratory</p> <p>Envirolab - secondary laboratory</p> <p>Laboratory QC analyses are included in Appendix H.</p>
	<p>Appropriate detection limits were used for the analyses to be undertaken.</p>	<p>LORs for all tested parameters during the PSI are presented in Appendix H.</p>
Holding Times	<p>Holding times are the maximum permissible elapsed time in days from the collection of the sample to its extraction and/or analysis. All extraction and analyses should be completed within standard guidelines.</p>	<p>Assessment undertaken by the laboratory.</p> <p>All analyses completed within required holding times, with the exception of QR1, TS1 and TB1. However, EI consider this a minor non-conformance and will not impact the quality of the data set as hydrocarbon concentrations for all primary soil samples were below the adopted site criteria.</p> <p>DQI achieved.</p>

Task	Description	Project
Method Blanks	<p>The method blank sample is laboratory prepared, containing the reagents used to prepare the sample for final analysis. The purpose of this procedure is to identify contamination in the reagent materials and assess potential bias in the sample analysis due to contaminated reagents. The QC criterion aims to find no detectable contamination in the reagents. Each analysis procedure should be subject to a method blank analysis. The results of each should indicate that contaminants were not detected.</p>	<p>Assessment undertaken by the laboratory. DQI achieved.</p>
Laboratory Duplicates	<p>Laboratory duplicates are field samples that are split in the laboratory and subsequently analysed a number of times in the same batch. These sub-samples are selected by the laboratory to assess the accuracy and precision of the analytical method.</p> <p>The selected laboratories should undertake QA/QC procedures such as calibration standards, laboratory control samples, surrogates, reference materials, sample duplicates and matrix spikes. Intra-laboratory duplicates should be performed at a frequency of 1 per 10 samples.</p>	<p>Assessment undertaken by the laboratory. DQI achieved.</p>
Laboratory Control Standards	<p>A laboratory control standard is a standard reference material used in preparing primary standards. The concentration should be equivalent to a mid-range standard to confirm the primary calibration. Laboratory control samples should be performed on a frequency of 1 per 20 samples or at least one per analytical run.</p>	<p>Assessment undertaken by the laboratory. DQI achieved.</p>
Matrix Spikes	<p>Matrix spikes are field samples to which a known concentration has been added. They are analysed for recovery of the known addition. Recoveries should be within the stated laboratory control limits of 70 to 130% and duplicates should have RPDs of less than 50%.</p>	<p>Assessment undertaken by the laboratory. DQI achieved.</p>
Surrogate Spikes	<p>Surrogate spikes provide a means of checking, for every analysis that no gross errors have occurred at any stage of the procedure leading to significant analyte loss. Recoveries should be within the stated laboratory control limits of 70 to 130%.</p>	<p>Assessment undertaken by the laboratory. DQI achieved.</p>

Task	Description	Project
QA/QC Conclusion	The QA/QC program should either comply with the required standards or show no variations that would have no significant effect on the quality of the data.	Assessment undertaken by the laboratory. Compliance observed.

Field QA/QC

The field (intra- / inter- laboratory) duplicate samples collected during the PSI are identified in **Table I-2**. The intra-laboratory duplicates were analysed by SGS (located in Alexandria NSW). The inter-laboratory duplicates were analysed by Envirolab (located in Chatswood NSW). Refer to **Table I-3** for a review of the field QC measures.

Table I-2 Field QC Samples

Matrix	Primary Sample	Duplicate (Primary Lab)	Triplicate (Secondary Lab)	Total Duplicates	Ratio
Soil Investigation					
Soil	BH1_0.0-0.1	QD1	QT1	2	1:8
Water	QR1 (equipment rinsate)				
Soil	TB1/TS1 (trip blank/trip spike)				
Groundwater Investigation					
Water	BH1M	QD1	QT1	2	1:4
Water	QR1 (equipment rinsate)				
Water	TB/TS (trip blank/trip spike)				

Table I-3 Field QC Review

Measure	Action	Conformance
Completeness Percentage of useable data from sampling episode (set)	Each critical location sampled	Yes
	SAQP appropriate and complied with	Yes
	Appropriate number of field duplicate samples taken	Yes
	Experienced sampler	Yes
	Field documentation correct	Yes
Comparability Confidence that data were equivalent for each sampling event	Same sampling method used on each occasion/location	Yes
	Experienced sampler	Yes
	Same type of samples collected (filtered, size, fractions)	Yes
Representativeness Confidence the data are representative of each media	Appropriate media sampled according to SAQP	Yes
	Each media identified in SAQP sampled	Yes

Measure	Action	Conformance
Precision Measure of the variability (or reproducibility) of data	Sampling/laboratory protocols appropriate and complied with	Yes
Accuracy Measure of the closeness of reported data to the true values	Sampling/laboratory protocols appropriate and complied with	Yes

Conclusion for the Field QA/QC

All field work, including equipment decontamination and sample preservation and transport, was conducted in accordance with the SAQP and SOPs, which were devised with reference to industry-approved guidelines. Appropriate QC measures were integrated into each sampling event and the DQI were met, or if not, the minor non-conformances had negligible effects on the data use for interpretative purposes.

All samples, including field QC samples, were transported to the primary and secondary laboratories under chilled conditions, using strict COC procedures. Relevant documents (COC forms) were presented with the samples at the times of delivery. All supporting documents (COCs and SRAs) were completed in full and signed, where appropriate. Copies of these were included in **Appendix G**. EI considered the field QA/QC program carried out during the PSI to be appropriate.

Laboratory QA/QC

Both SGS and Envirolab were accredited by NATA for the analyses undertaken. Refer to **Table I-4** for a review of the laboratory QC measures.

Table I-4 Laboratory Data Quality Indicators

Measure	Action	Conformance
Completeness Percentage of useable data from sampling episode (set)	All critical samples analysed according to SAQP and proposal	Yes
	All analytes analysed according to SAQP in proposal	Yes
	Appropriate methods and PQLs	Yes
	Sample documentation complete	Yes
	Sample holding times complied with	Yes
Comparability Confidence that data were equivalent for each sampling event	Sample analytical methods used (including clean-up)	Yes
	Sample PQLs (justify/ quantify if different)	Yes
	Same laboratories (justify/ quantify if different)	Yes
	Same units (justify/ quantify if different)	Yes
Representativeness Confidence the data are representative of each media	All samples analysed according to SAQP in the proposal	Yes
Precision Measure of the variability (or reproducibility) of data	Analysis of laboratory duplicates	Yes
	Analysis of field duplicates	Yes
	Analysis of laboratory-prepared volatile trip spikes	Yes
Accuracy Measure of the closeness of reported data to the true values	Analysis of field blanks	Yes
	Analysis of rinsate blanks	Yes
	Analysis of method blanks	Yes
	Analysis of matrix spikes (MS)	Yes
	Analysis of surrogate spikes	Yes
	Analysis of laboratory control samples	Yes

Conclusion for the Laboratory QA/QC

All contracted laboratories (SGS and Envirolab) were accredited by NATA for the analyses undertaken. All analytical procedures used were industry recognised and endorsed standard methods. Appropriate QC measures were integrated into each testing batch and the DQIs were met, or if not, the variability was suitably justified. All final reports were submitted in full and included all requested analyses, as per the signed COC forms. EI considered the laboratory QA/QC programs carried out during the PSI to be appropriate.

Summary of Project QA/QC

The project DQOs specified in **Section 5, Table 5-1** were considered to have been achieved. The adopted QA/QC program ensured that the data collated during the PSI were accurate, precise and representative of the (final) site conditions. It was therefore considered that the data were reliable and that the results could be used for PSI interpretative purposes.